ALL ABOUT HISTORY

AGE *of* ENLIGHTENMENT

Discover the philosophical movement that triggered innovation, revolution and change

ENCYCLOPÉDIE,
OU
DICTIONNAIRE RAISONNÉ
DES SCIENCES,
DES ARTS ET DES MÉTIERS,
PAR UNE SOCIÉTÉ DE GENS DE LETTRES.

TOME PREMIER.

A PARIS,

M. DCC. LI.

DU
CONTRACT SOCIAL;
OU,
PRINCIPES
DU
DROIT POLITIQUE.
Par J. J. ROUSSEAU,
CITOYEN DE GENEVE.

A AMSTERDAM,
Chez MARC MICHEL REY.
MDCCLXII.

Digital Edition

FUTURE

FIRST EDITION

JOHN LOCKE ◆ VOLTAIRE ◆ THOMAS JEFFERSON ◆ ISAAC NEWTON

Welcome to

ALL ABOUT HISTORY

AGE of ENLIGHTENMENT

In 1660, Europe was on the precipice of something new. England and Scotland saw the restoration of their monarchy; scientific innovation was on the rise; people were becoming unsettled with the status quo. The Renaissance was being phased out and the more logic-focused Age of Enlightenment was born.

New philosophies swept across the continent, calling religion and life into question, while women like Mary Wollstonecraft finally had the opportunity to become intellectuals thanks to the coffeeshops and salons. As new ideals became more prominent throughout the 18th century, the people sparked revolutions that would change the face of Europe and even the Americas forever.

So turn the page to meet the kings and queens who brought new ways of thinking to their people, and explore the art and literature created in this Age of Reason. From Ireland to Russia, the United States to Paraguay, this was a time of change and the world would never be the same again.

AGE *of* ENLIGHTENMENT

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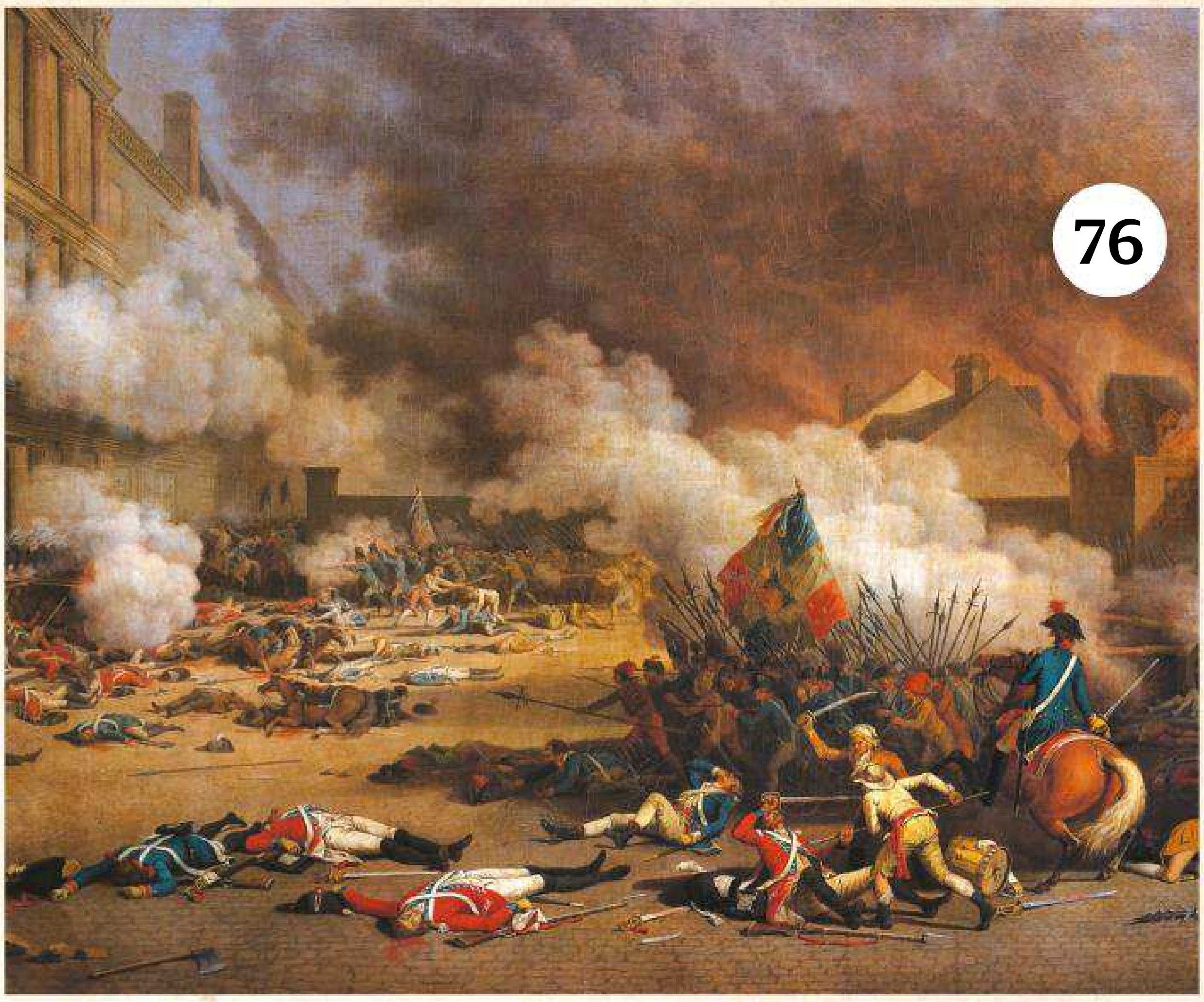

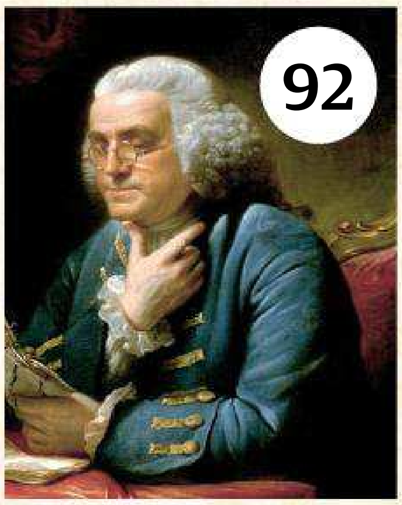

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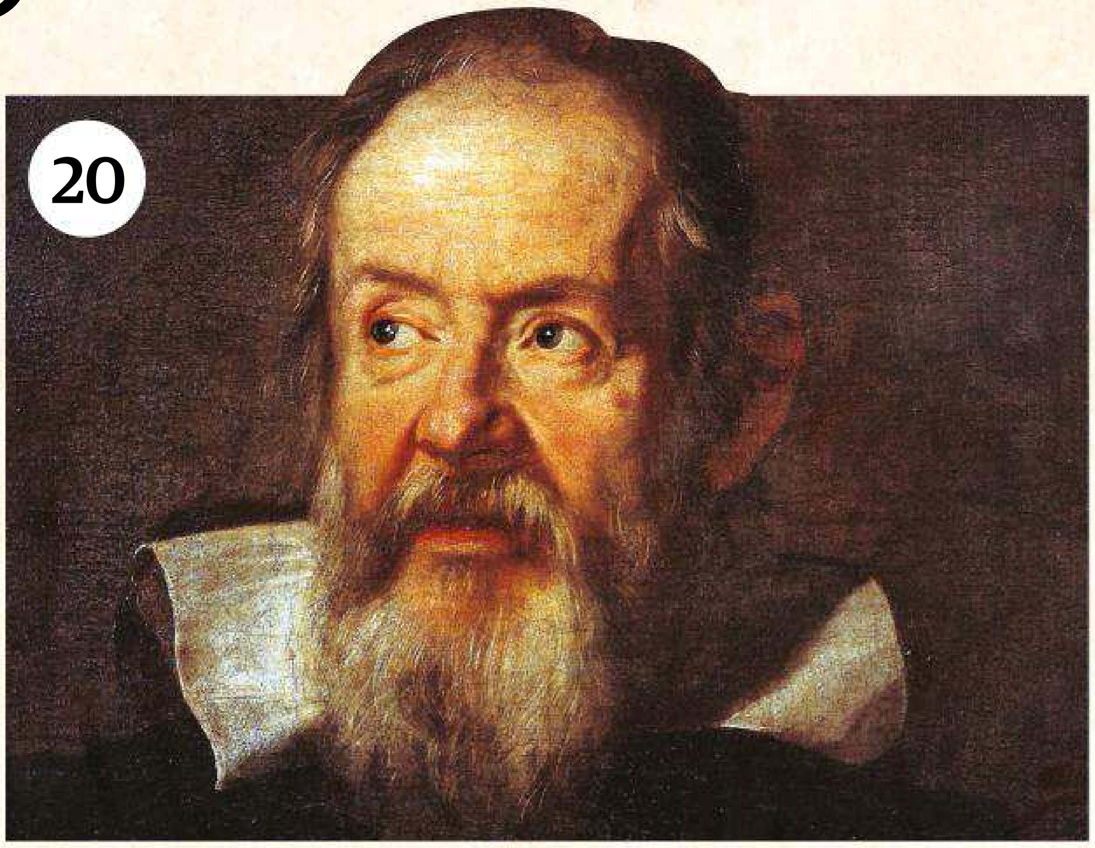

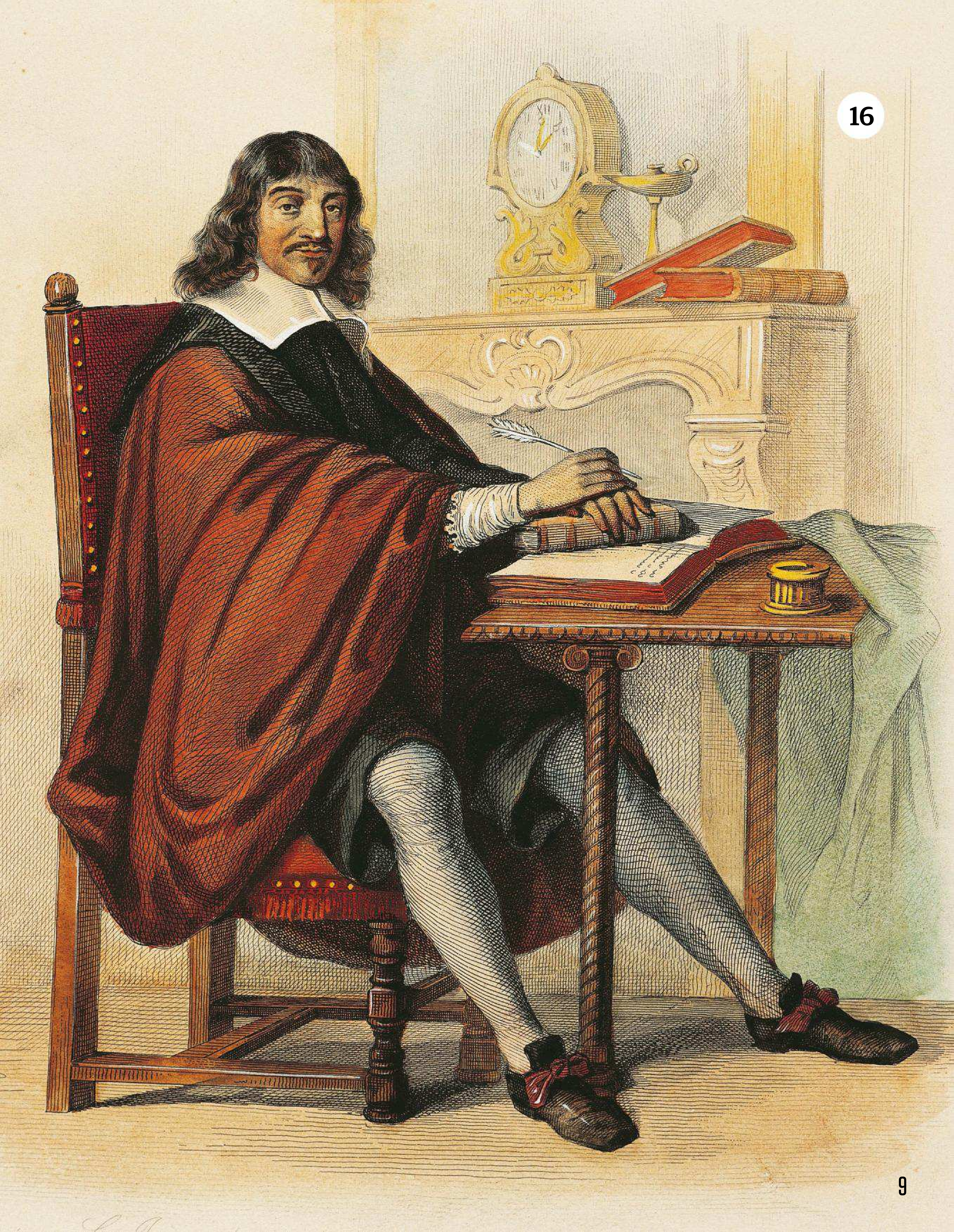

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The Renaissance

Before the Enlightenment came an age that saw the rebirth of thought and knowledge

Words by Derek Wilson

The Renaissance was a creative but also intensely disturbing time. Many people believed that the year 1500 would mark the end of the world - a fear captured by Albrecht Dürer in his haunting engraving *The Four Horsemen of the Apocalypse*. Medieval Europe for all its inhabitants meant Western Christendom. Broadly speaking, the states lying to the west of the Danube and the Vistula belonged to one spiritual and cultural whole whose headquarters was Rome.

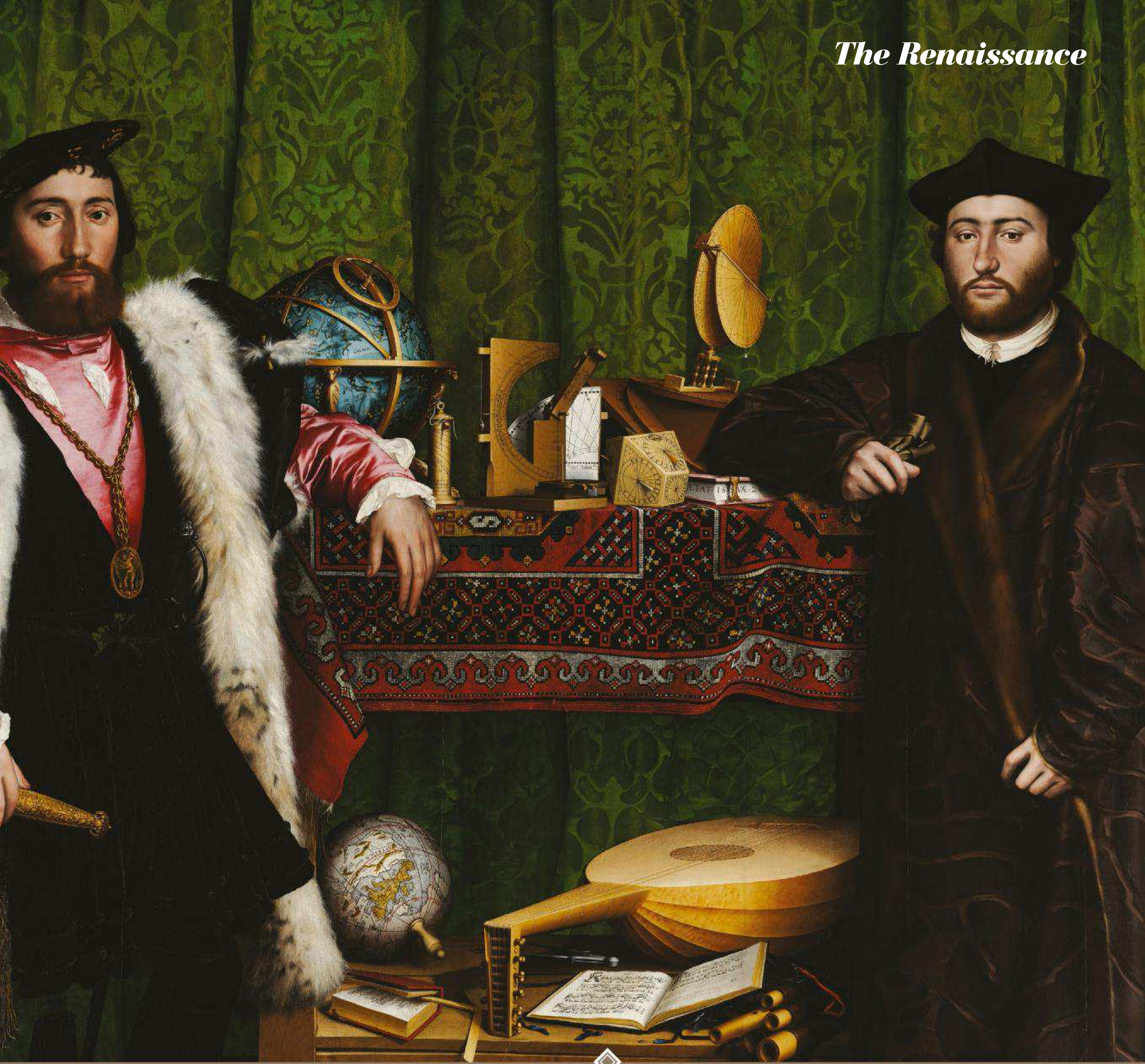
The pope held ultimate control over the religious life of the continent through four networks: political, administrative, devotional and intellectual. Rome was in diplomatic contact with and claimed ultimate authority over all terrestrial rulers, from 1314 papal regalia included the triple crown, symbolising 'father of kings', 'governor of the world' and 'vicar (representative) of Christ'. Through diocesan bishops and parish priests, the pope regulated the ritual observances and doctrinal beliefs of the people. The religious orders of monks, nuns and friars patterned the ideals of holy living. In the growing number of universities, theology was the 'queen of the sciences'. The Church provided the teachers and supervised the curricula.

For all most people knew, this was the way things had always been. However, scepticism and criticism of the status quo were not new. From time to time, dissenters had appeared who questioned papal pronouncements and traditional theology. Rome had disciplinary powers to deal with 'heretics' and did not hesitate to use them. However, in the 15th century the number of 'free-thinkers' grew and it was from within the universities that the main challenges came that would trigger what we now call the Renaissance and the Reformation.

It seldom makes much sense to fix dates for the 'start' of major historical movements but in the 1450s two events occurred that made an intellectual impact that can only be called revolutionary. In Metz - which is now in northern France but was then a free imperial city - Johann Gutenberg developed the technique of printing with movable type. Far to the east, Constantinople, the ancient centre of eastern Orthodox Christianity, was overrun by Muslim conquerors in 1453.

One consequence of the latter was the flight of Christian monks and scholars, bringing with them precious ancient books and manuscripts never seen in the West. As well as early Christian writings, this scholarly bonanza included Greek

> "From time to time, dissenters had appeared who questioned papal pronouncements and traditional theology"



The Ambassadors, Hans Holbein, 1533

This remarkable painting by Hans Holbein the Younger can be understood on various levels

1 **A celebration of Renaissance scholarship and culture.** The terrestrial and celestial globes relate to the study of geography and astronomy. The mathematical instruments represent geometry and arithmetic. The musical instruments draw attention to the new movements in the arts.

---

2 **A representation of humanist thinking.** The two figures are French ambassadors, François de Dinteville and Georges de Selve. De Dinteville later came under suspicion for heresy while his companion was considered a more moderate humanist.

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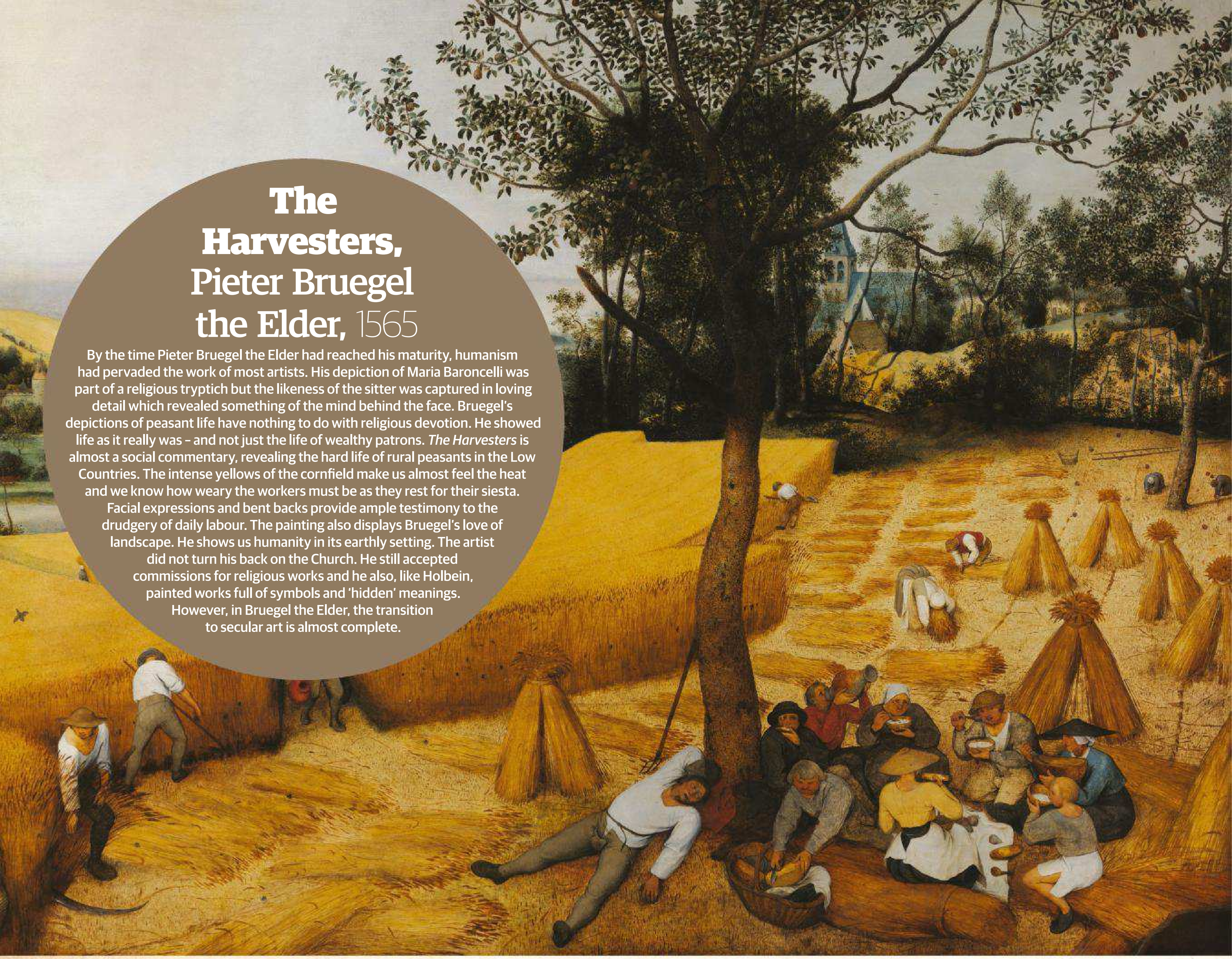
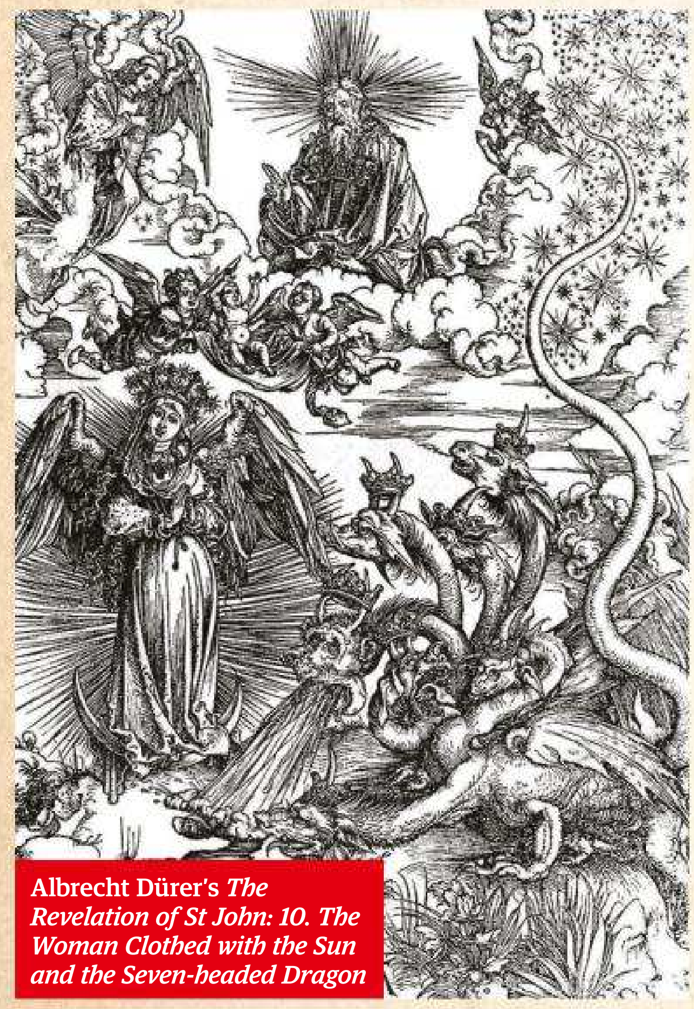
3 **A demonstration of discord.** The lute has a broken string while on the celestial globe a hen attacks a hawk. The foreground is dominated by a distorted skull, which can only be viewed properly by standing to the right of the picture, otherwise it looks more like an error.

4 **An assertion of religion in peril.** In the top left-hand corner, a crucifix is largely obscured by the curtain. Holbein is pointing out the richness brought to European life by the remarkable achievements of Renaissance scholarship. But all these accomplishments have not made the world a better place. The viewer, need to be reminded by the distorted skull (or anamorphosis) that this life, with all its pros and cons, is transitory. We neglect the next world (the crucifix) at our peril. *The Ambassadors* has many other stories to tell, for clever signs, symbols and secret meanings were parts of the stock-in-trade of Renaissance artists. For all its celebration of new truth and rejection of old dogma, the Renaissance had not banished anxiety about ultimate human destiny. Van Eyck's frightening image of *The Last Judgement* still expressed what many felt. Holbein suggests that, in challenging Christian revelation, humanists might be throwing out the baby with the bathwater.



The Harvesters, Pieter Bruegel the Elder, 1565

By the time Pieter Bruegel the Elder had reached his maturity, humanism had pervaded the work of most artists. His depiction of Maria Baroncelli was part of a religious tryptich but the likeness of the sitter was captured in loving detail which revealed something of the mind behind the face. Bruegel's depictions of peasant life have nothing to do with religious devotion. He showed life as it really was – and not just the life of wealthy patrons. *The Harvesters* is almost a social commentary, revealing the hard life of rural peasants in the Low Countries. The intense yellows of the cornfield make us almost feel the heat and we know how weary the workers must be as they rest for their siesta. Facial expressions and bent backs provide ample testimony to the drudgery of daily labour. The painting also displays Bruegel's love of landscape. He shows us humanity in its earthly setting. The artist did not turn his back on the Church. He still accepted commissions for religious works and he also, like Holbein, painted works full of symbols and 'hidden' meanings. However, in Bruegel the Elder, the transition to secular art is almost complete.



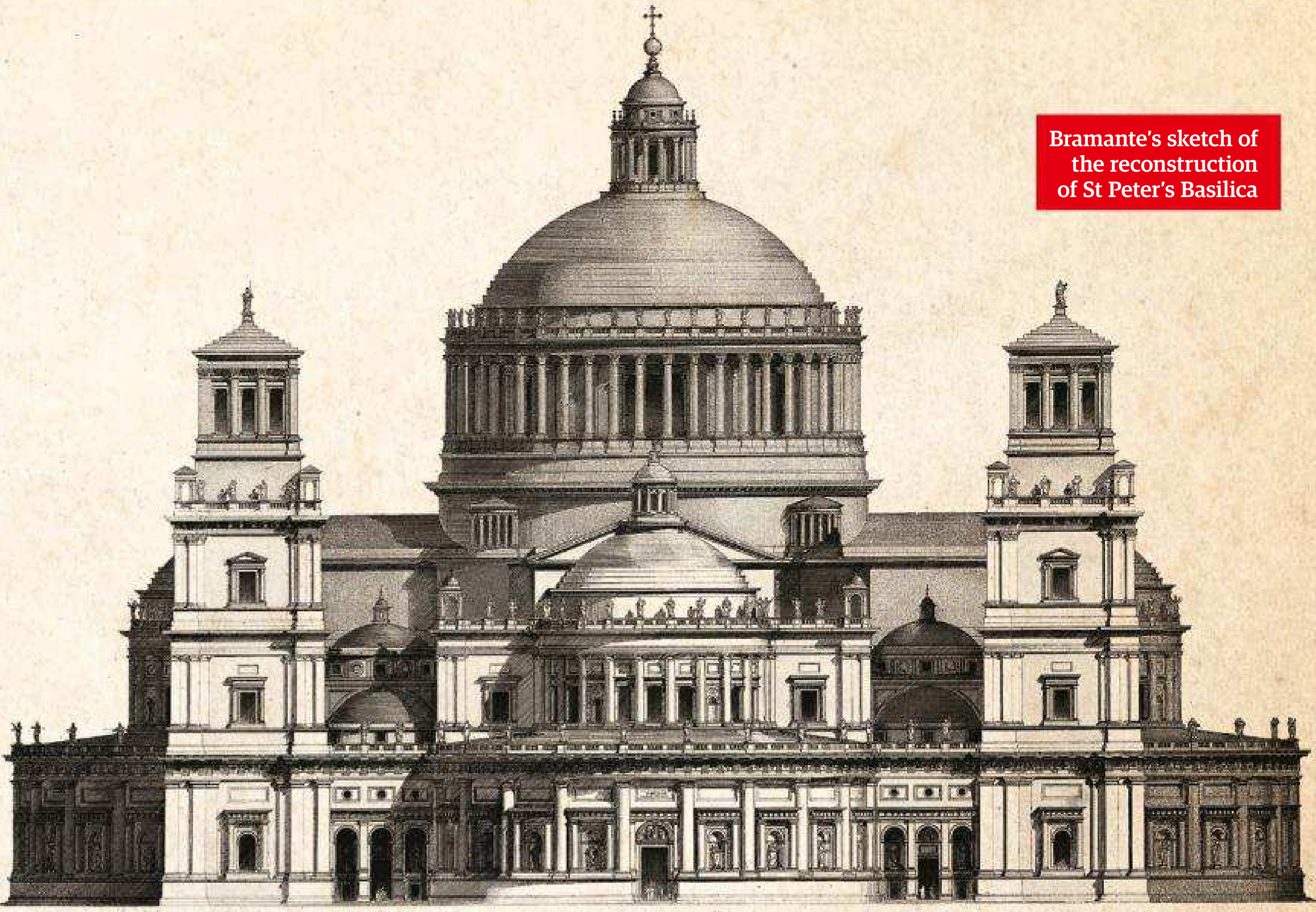
Albrecht Dürer's *The Revelation of St John: 10. The Woman Clothed with the Sun and the Seven-headed Dragon*

texts from the classical world and these augmented the volumes of ancient wisdom already preserved in monastic libraries, creating a flurry of excitement among international scholars. They discussed these new sources in their correspondence but, more importantly, thanks to Gutenberg's invention, they reproduced these texts and wrote commentaries on them that could be widely circulated. There appeared, within a few years, a body of avant-garde academics exploring completely new ways of looking at the world.

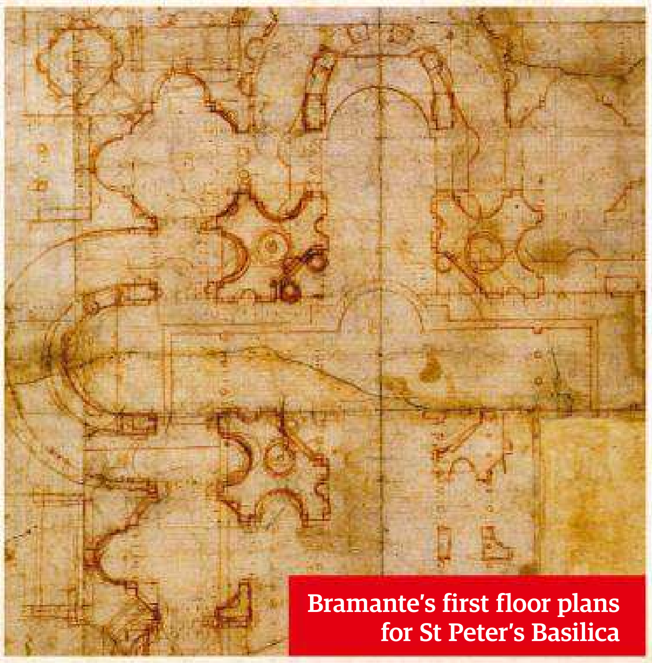
The prime movers of this philosophy were the Italian scholars Giovanni Pico della Mirandola and Marsilio Ficino. In essence, both of them were suggesting that there existed a God-given prisca theologia (or 'old religion') from which all subsequent religions and philosophies had diverged. In this they followed the late classical development of the teachings of Plato, called 'Neoplatonism' by later historians, but they also incorporated Jewish and Islamic elements, too. Their syncretistic approach to the pursuit of scientia (knowledge) focused on human intellectual endeavour and has, thus, since the 19th century, been labelled 'humanism'.

This brought a new breed of philosophers into conflict with the upholders of traditional Catholic teaching. This claimed that all knowledge was based on divine revelation as contained in Christian scriptures, embellished over the century by the 'Fathers' - the great doctors of the Church - and endorsed by the papacy. The system of theological teaching in Medieval universities was known as 'scholasticism'. By the 15th century it had become a restricted, controlled and pedantic methodology. In 1215, Pope Innocent III had declared: "The secret mysteries of the faith ought not... to be explained to all men in all places... Such is the depth of divine Scripture, that not only the simple and illiterate but also the prudent and learned are not fully sufficient to try to understand it."

In other words, the Bible is the only source of divine knowledge and the Church is the only guide to understanding the Bible, and the only men able to teach what the Church says are those who have been through the scholastic mill. For most young men passing through the universities, what this meant, in practice, was learning by rote the 'correct' interpretation of the Bible as formulated in the 12th century by the French scholar Peter Lombard in his



Bramante's sketch of the reconstruction of St Peter's Basilica



Bramante's first floor plans for St Peter's Basilica

"The Church hierarchy was mercilessly satirised by the humanist Sebastian Brant"

monumental Bible commentary that went by the name of *The Four Books of Sentences*.

This does not mean that the Medieval Church produced no independent, original thinkers. Of those scholars who contributed fresh approaches to the search for knowledge, the most influential was Thomas Aquinas. He made a close study of the works of Aristotle and produced a body of works (principally the *Summa Theologiæ*), which used the methods advocated by the Greek philosopher to prove, by logical process, the doctrines of the Church. Since everything comes from God, he averred, revelation and reason cannot be in conflict. For example, he produced five arguments for the existence of God.

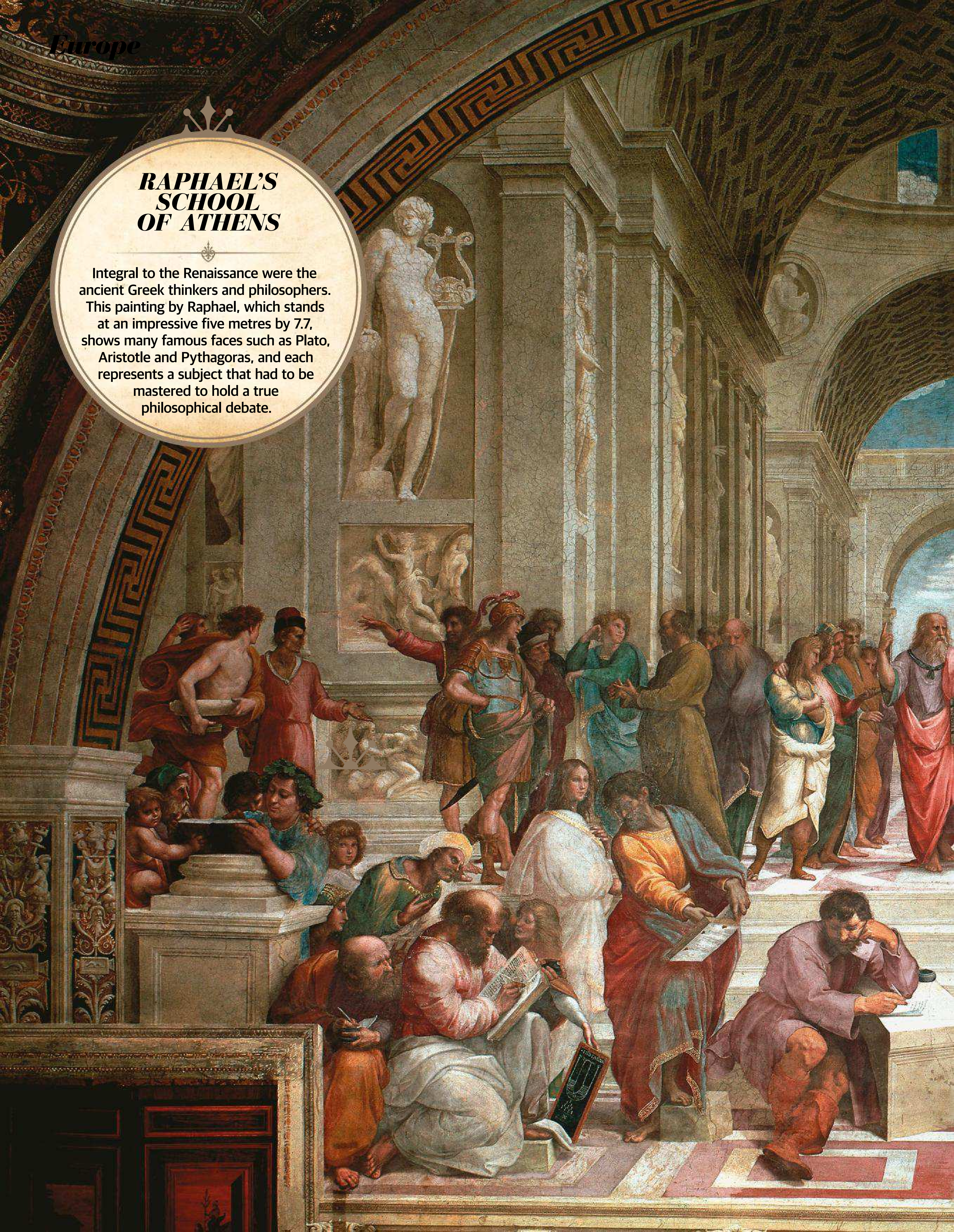
The *Summa* and the *Sentences* became the intellectual container - cast iron and impervious - of official Church teaching. Ironically, it was when humanist scholars applied logic, drawing upon newly available sources, to the study of Christian belief that the container was shown to be less than absolutely watertight.

Ever since the 4th century, the Church's basic text had been the Vulgate, St Jerome's Latin translation of the Bible. In 1516, the Dutch scholar Desiderius Erasmus published the *Novum Instrumentum omne*, a fresh Latin version of the New Testament based on the best ancient Greek texts which had become available. Reaction in several orthodox quarters was one of shock and horror. Erasmus' suggestion that the Vulgate was anything less than perfect was unacceptable. But the implications ran deeper. Erasmus rejected St Jerome's translation 'do penance' and replaced it with 'repent'. This shifted responsibility from performance of a ritual to the believer's individual, private relationship with God. But Erasmus went still further. He urged that the Bible should be translated into every vernacular: "May the peasant sing extracts from the Scripture as he ploughs the field, the weaver sing a Biblical song while working at his loom."

Widespread illiteracy had prevented any major challenge being mounted by ordinary people but printed books not only made learning widely available, they also created a popular demand for education. The printing press even impacted on the illiterate majority, for engravings such as Dürer's were available and cheap for the ordinary people. Pictures, often satirical, said more than words. Soon the Bible itself was being translated into modern languages. The Church was losing its grip on the minds of the laity.

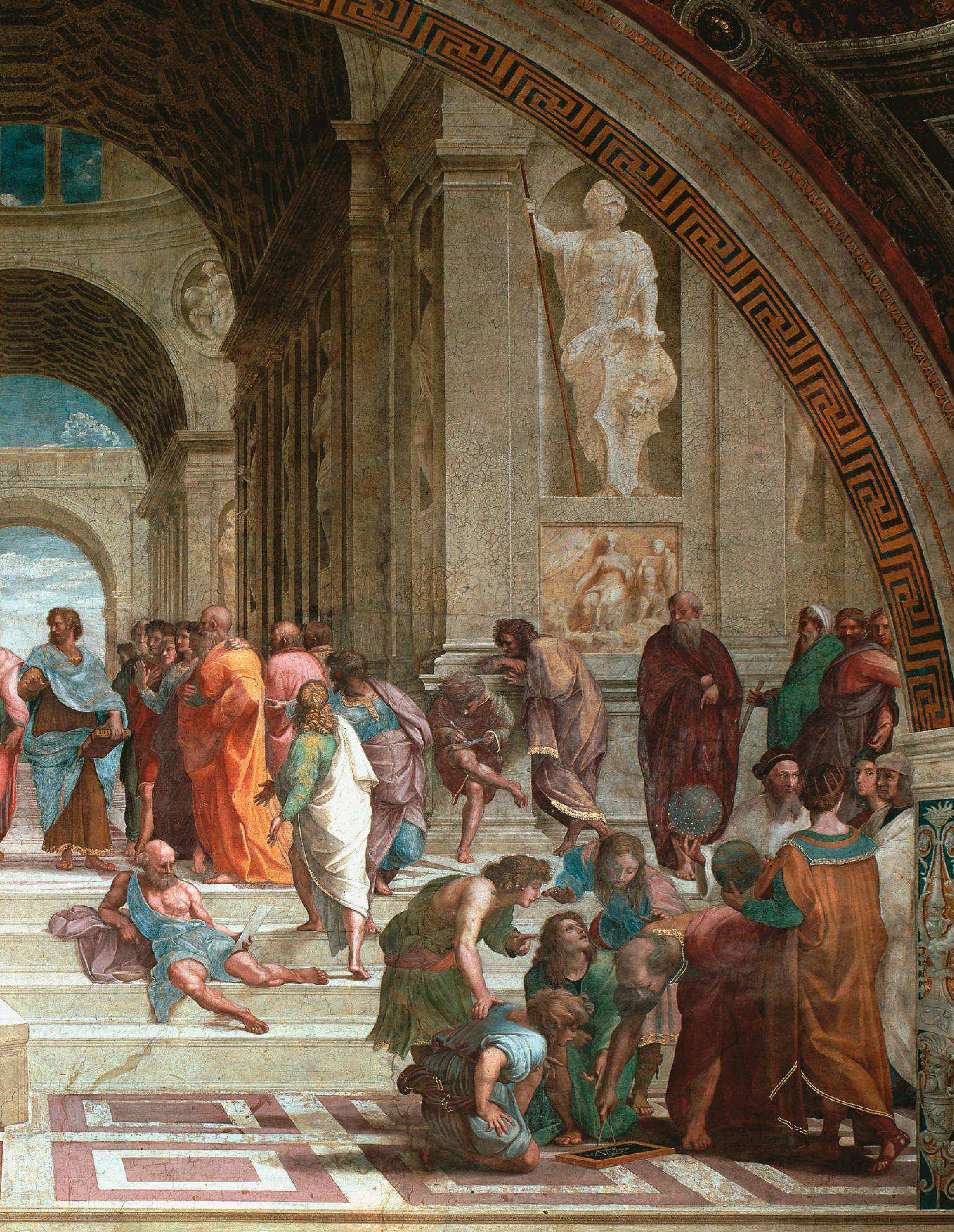
All this might not have mattered quite so much had the papacy not been at a low ebb. It was severely devalued by the corrupt Alexander VI and the extravagant voluptuary Leo X. The Church hierarchy was mercilessly satirised by the humanist Sebastian Brant in his *Ship Of Fools* and by Erasmus in his *In Praise Of Folly*.

The ecclesiastical establishment became a fortress under siege, undermined by humour and assailed by intellectual argument. It reacted by asserting its ancient authority. The works of Ficino, Mirandola and Erasmus were among those placed on the list of banned books, and the Holy Inquisition, the Church's instrument for 'correcting error', was given sharper teeth. As the 16th century wore on, it was not just defiant Protestants who were imprisoned and executed; many honest and devout scholars joined them. But things were about to change again.



RAPHAEL'S SCHOOL OF ATHENS

Integral to the Renaissance were the ancient Greek thinkers and philosophers. This painting by Raphael, which stands at an impressive five metres by 7.7, shows many famous faces such as Plato, Aristotle and Pythagoras, and each represents a subject that had to be mastered to hold a true philosophical debate.



Dare to Know

How Europe was shaken by the intellectual and philosophical movement that dominated the world of ideas

Words by Amy Best

Following the explosion of creativity in Florence during the 14th century known as the Renaissance, the modern world saw a departure from what it had once known. It turned from God and the authority of the Roman Catholic Church and instead favoured a more humanistic approach to being. Renaissance ideas had spread throughout Europe well into the 17th century, with the arts and sciences flourishing extraordinarily among those with a more logical disposition. With the Church's teachings and ways of thinking being eclipsed by the Renaissance, the gap between the Medieval and modern periods had been bridged, leading to new and unexplored intellectual territories.

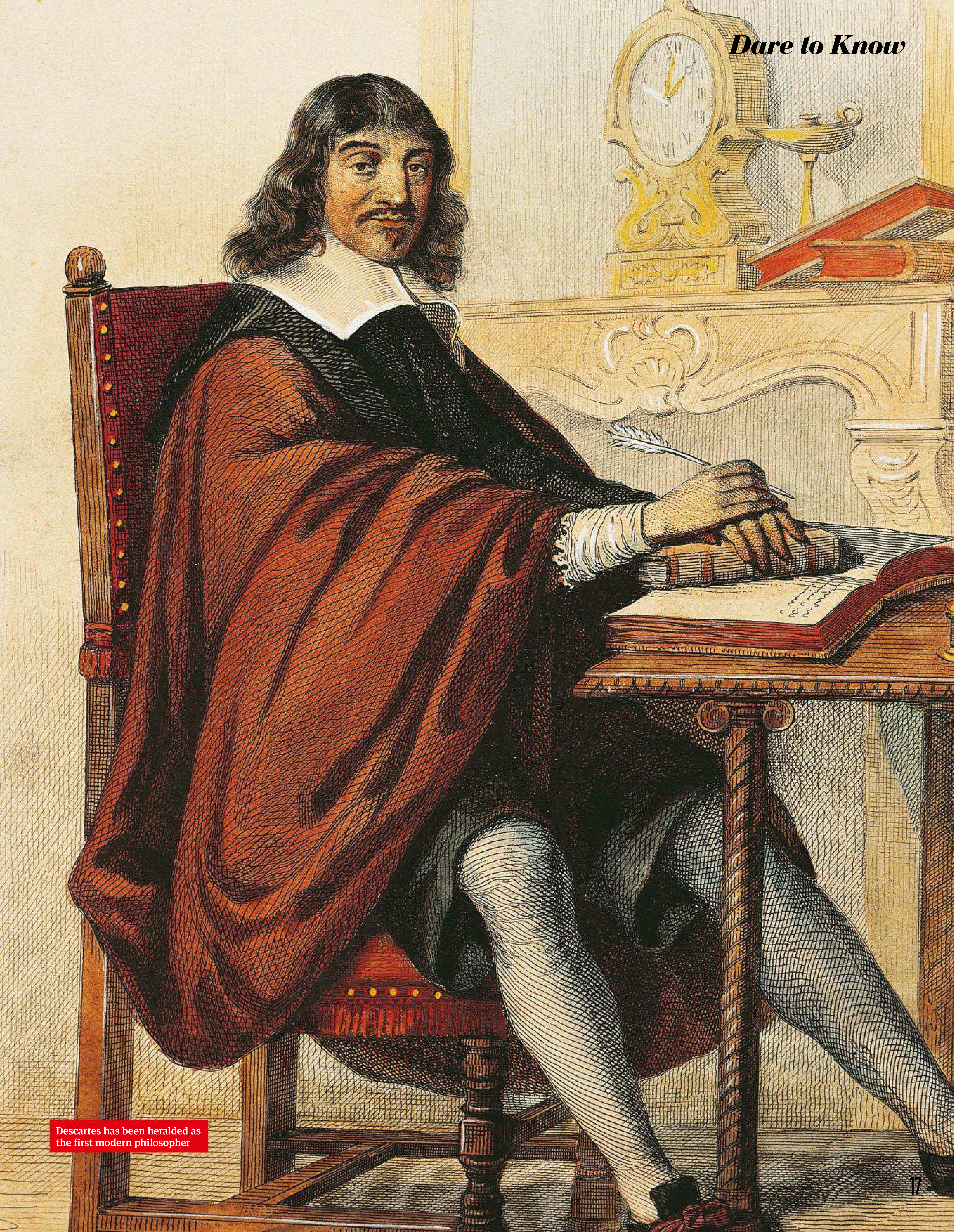
During the Renaissance, the great minds of Nicolaus Copernicus, Johannes Kepler and Galileo Galilei demonstrated the power of scientific study and discovery. Before each of their revelations, many thinkers at the time had sustained more ancient ways of thinking, including the Ptolemaic and Aristotlean geocentric view that the Earth was at the centre of our universe. Copernicus theorised in 1543 that in actual fact, all of the planets that we knew of revolved not around the Earth, but the Sun, a system that was later upheld by Galileo at his own expense. Offering up such a theory during a time of high tension between scientific and religious minds was branded as heresy, and any such heretics that continued to spread these lies were to be punished by imprisonment or even death. Galileo was excommunicated by the Church and imprisoned for life for his astronomical observations and his support of the heliocentric principle.

Despite attempts by the Church to strong-arm this new generation of logicians and rationalists, more explanations for how the universe functioned were being made, and at a rate that the people - including the Church - could no longer ignore. It was with these great revelations that a new kind of philosophy founded in reason was born.

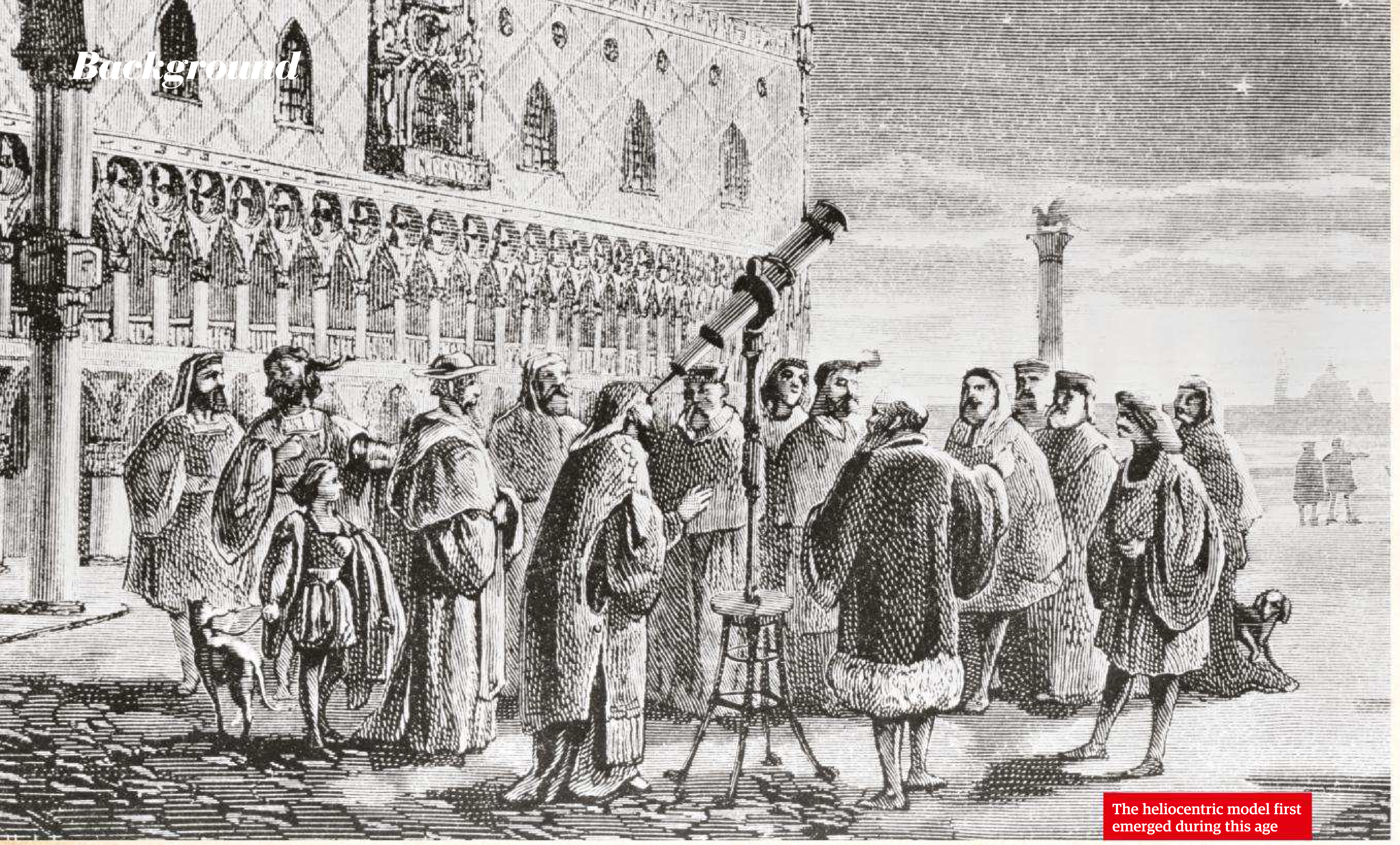
The Church's long-standing dogma was losing the great battle for truth to rationalists and scientists. This very fact embodied the new ways of thinking that swept through Europe during most of the 17th century. Many took up the mantle of trying to integrate reasoning and scientific philosophies into the world. The Renaissance was over and it was time for a new era - the Age of Reason.

The 17th and 18th centuries were times of radical change and curiosity. Scientific method, reductionism and the questioning of Church ideals was to be encouraged, as were ideas of liberty, tolerance and progress. Such actions to seek knowledge and to understand what information we already knew were captured by the Latin phrase 'sapere aude' or 'dare to know', after Immanuel Kant used it in his essay *An Answer to the Question: What is Enlightenment?*. It was the purpose and responsibility of great minds to go forth and seek out the truth, which they believed to be founded in knowledge.

Who we now know to be the first 'modern' philosophers - René Descartes, Thomas Hobbes and Francis Bacon - revived the connection



Descartes has been heralded as the first modern philosopher



The heliocentric model first emerged during this age

between science, mathematics and philosophy that dated back to pre-Socratic Greece. Along with other great minds like Blaise Pascal and Gottfried Wilhelm Leibniz and their respective works, they each believed that we could best acquire knowledge of our world through the process of reasoning.

Bacon, considered widely with being the first to follow the British empirical way of thinking, was the one who had established the methods that best enabled other scientists to conduct new experiments in the new world. He believed that all knowledge and information that we attain comes from physical and sensory experience, and that it was the responsibility of scientists to battle against any handicaps that may present themselves in order to gain such knowledge. Bacon also created the initial framework by which we were able to investigate the world around us. It was Bacon's belief that the practical applications of the scientific discoveries being made were their purpose.

Descartes became inspired by the work of Bacon, but not for the same reasons as Bacon himself. Descartes became much more fascinated by the potential of extending newly acquired knowledge and understanding of the world around us. It was Descartes' desire to rid the inquisitive world of science of the scepticism that had followed it around for so long. He sought to discover how and what knowledge could be presented, even when coming from positions of scepticism. In Descartes' *Meditations on First Philosophy*, where he most rigorously studied and ruminated on epistemology and metaphysics, he questioned "what can I know?" For Descartes, the only answer was that true knowledge could only come from reason. It was this crucial idea that would dominate the stage of thought and belief for the next century.

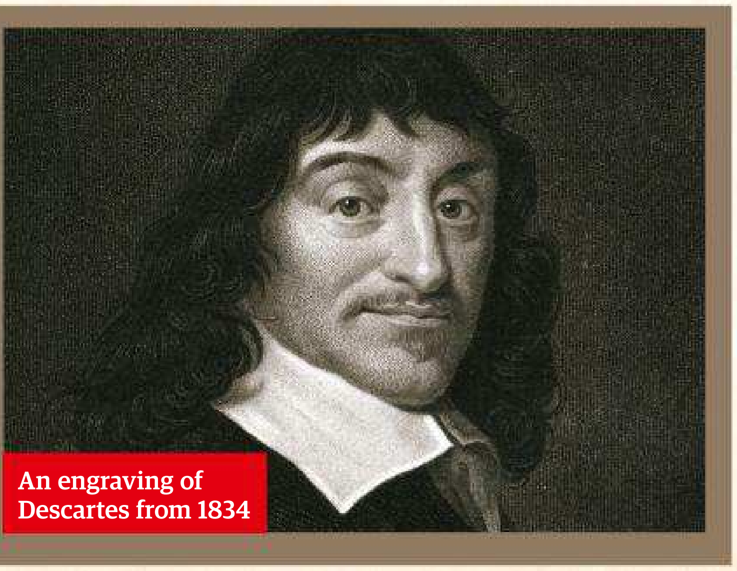
However, such a revelation would certainly not be so easily accepted as gospel by the now inquisitive and uncertain minds of 18th-century Europe. Now was the Age of Enlightenment. Every new theory was to be questioned, probed, prodded and dissected until little doubt in it existed. Of course, no such theory could exist in what was now an intellectual battleground.

English philosopher John Locke opposed the very fabric of Descartes' new-found philosophy in his work *An Essay Concerning Human Understanding*. Locke firmly believed that we do not gain knowledge through reason, but through experience: "No man's knowledge here can go beyond his experience". If we were able to rationalise this very principle, then we would be able to generate a plethora of new ideas and principles to help understand existence. It was Locke's hope that we would eventually be able to

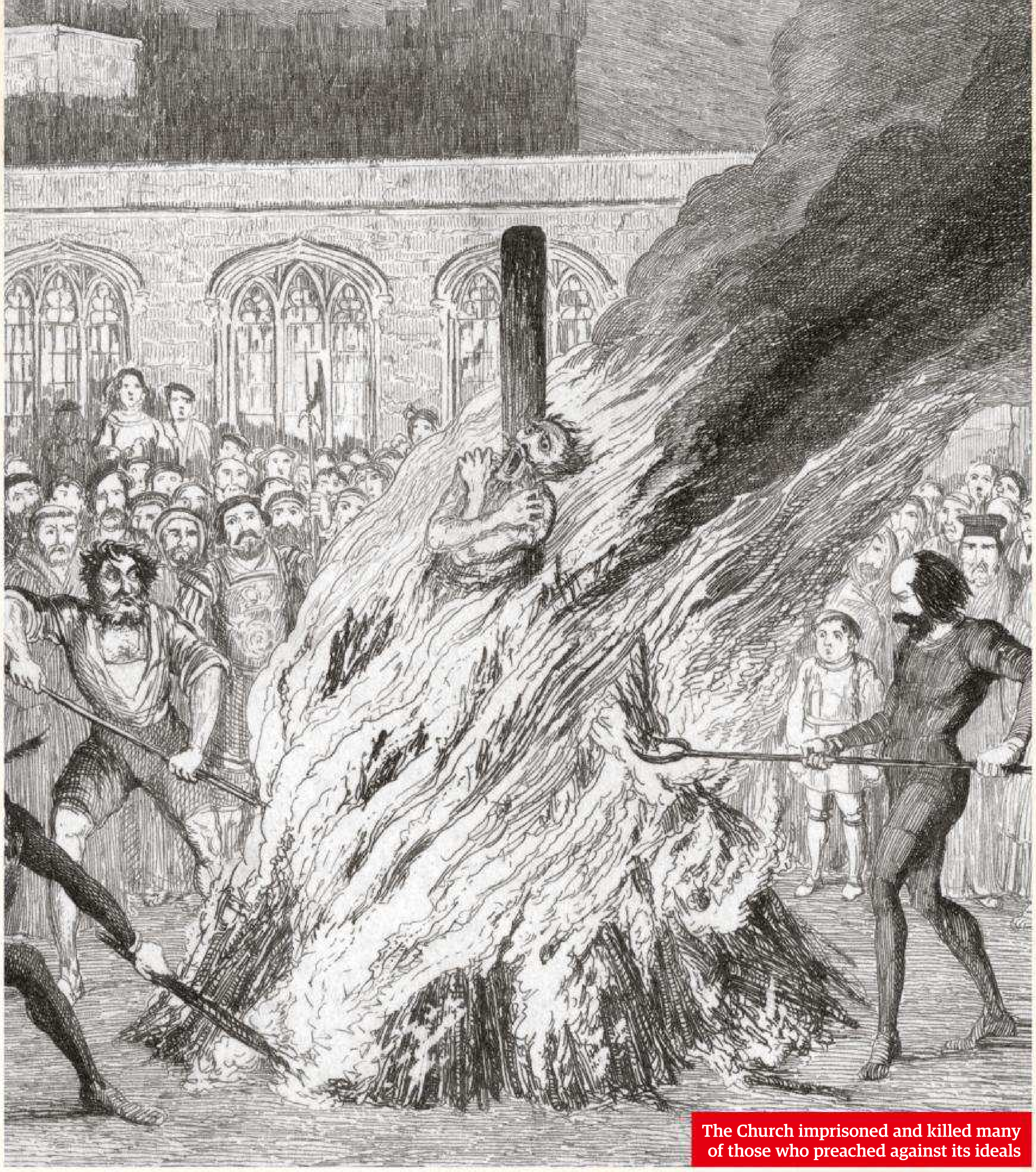
René Descartes

The father of modern Western philosophy

Born near Tours, France, to Jeanne Brochard and Joachim, a member of Parlement of Brittany at Rennes, Descartes developed an interest in the pursuit of knowledge from a young age. He spent much of his time studying mathematics until he opted to fight for his country as a soldier for France in the Thirty Years' War. It was during this time that he realised his true calling lay in the field of philosophy. After four years of service, Descartes moved to Paris and then on to the Netherlands, where he resided for almost the rest of his life. In 1649, he was invited by Queen Christina of Sweden to organise a new scientific society. He was, by this time, considered to be one of the most influential philosophers and scientists in continental Europe. By 1 February 1650, Descartes had contracted pneumonia and died just ten days later. The true cause of his death has been disputed among historians, with some even believing that he was assassinated.



An engraving of Descartes from 1834



The Church imprisoned and killed many of those who preached against its ideals

set down specific limits to what we could know. This was an idea that would later be known as empiricism, and that very much characterised British philosophy at the time.

Despite Descartes' and Locke's two very different approaches to the rationality behind how we acquire knowledge, the two ideas shared one vital piece of common ground - humans. It is the being, or human, whose experience or reason leads them to knowledge.

Over the century and into the next one, philosophers in support of both approaches began to question how we are able to know what we know, which led them to pursue ideas of human nature itself. The intellectual playing field was growing exponentially, with more and more key players holding up their banners and the common people choosing their team and wearing their colours. However, as with any new philosophies or systems of belief, it had now become a part of the knowledge process to assess the fact that each strand would have its own moral, political and social implications.

The monarchies and aristocracy of 18th-century Europe began to worry about their position in the evolution of society. Just as the Church's strong position over the people of continental Europe had been significantly diminished, the upper classes feared that the same kind of revolt could be made against them. If they no longer had any purpose, what exactly would replace them in society? However, it was not only the elite that were facing a shake-up. The political systems across Europe had a new door opened to them, and one that led to the creation of the modern liberal democracies and more progressive thought. Conservative and more rigid ways of approaching politics and society were being challenged and left behind in favour of inclusive and fair ideals.

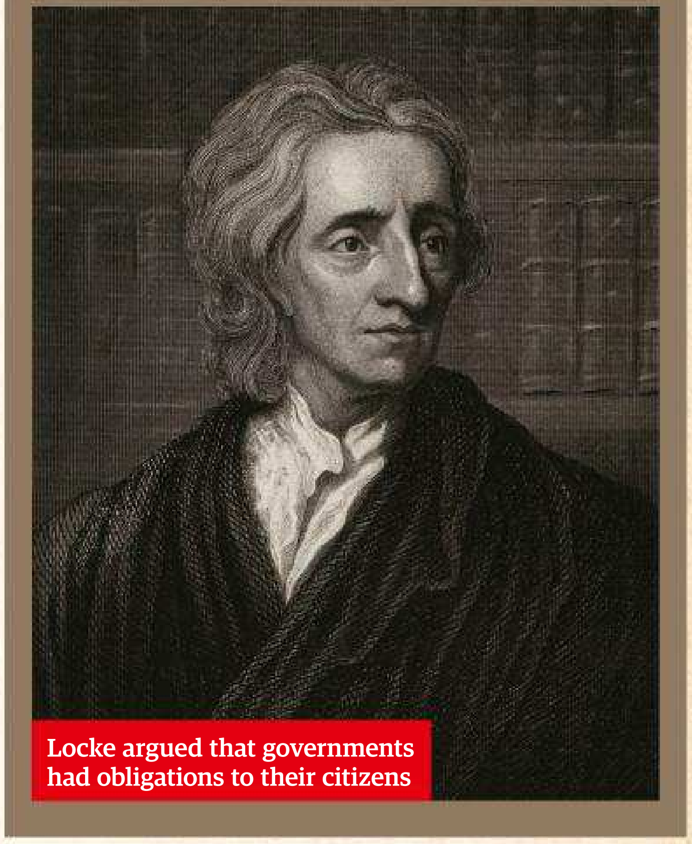
It is safe to say that the 'Age of Reason' was a sprawling movement that captured the minds of millions across Europe. It was a period of time that encouraged many to hold tightly onto the initial principles introduced by the Renaissance and 'Scientific Revolution', and go out into the world with open minds and an inquisitive soul. It affected all aspects of life and would help carry us into the next century with more understanding of the world than ever before. Philosophy, mathematics, science, politics, economics and medicine were drastically expanding and updated, with errors from across the board being corrected and theories being proven. Much of what we now know has roots in the Enlightenment, and there really is no question of whether the movement was able to incite real change in the world.

John Locke

Introducing the father of liberalism

Born to Puritan parents in Somerset, England, Locke was encouraged to seek out knowledge at an early age. With the help and sponsorship of a member of parliament and his father's commander, Alexander Popham, Locke was permitted to attend the prestigious Westminster School, which then led him to Christ Church, Oxford. He became interested in the works of René Descartes and Robert Boyle during his time at university, which birthed an interest in philosophy and the path to truth.

With the help of his friend Richard Lower, Locke went on to study both experimental philosophy and medicine. Though his work in the field of British empiricism is very noteworthy, it was his political writing that solidified his name in the pages of history. In his writings, he proposed the idea of social-contract theory of the legitimacy of government, and the principle of natural rights of our own private property. Later in his life, he faced political exile and fled England. However, he eventually returned, living in Essex until his death in 1704.

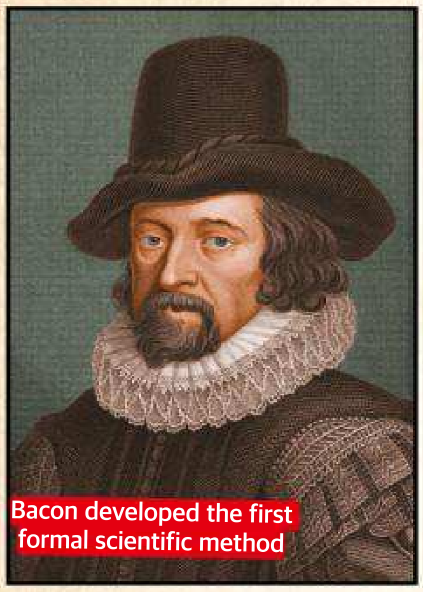


Locke argued that governments had obligations to their citizens

> "Despite Descartes' and Locke's two very different approaches, the two ideas shared one vital piece of common ground - humans"

Influencing the Enlightenment

Before the Age of Reason, several individuals had already set the wheels in motion with their progressive and revolutionary thinking

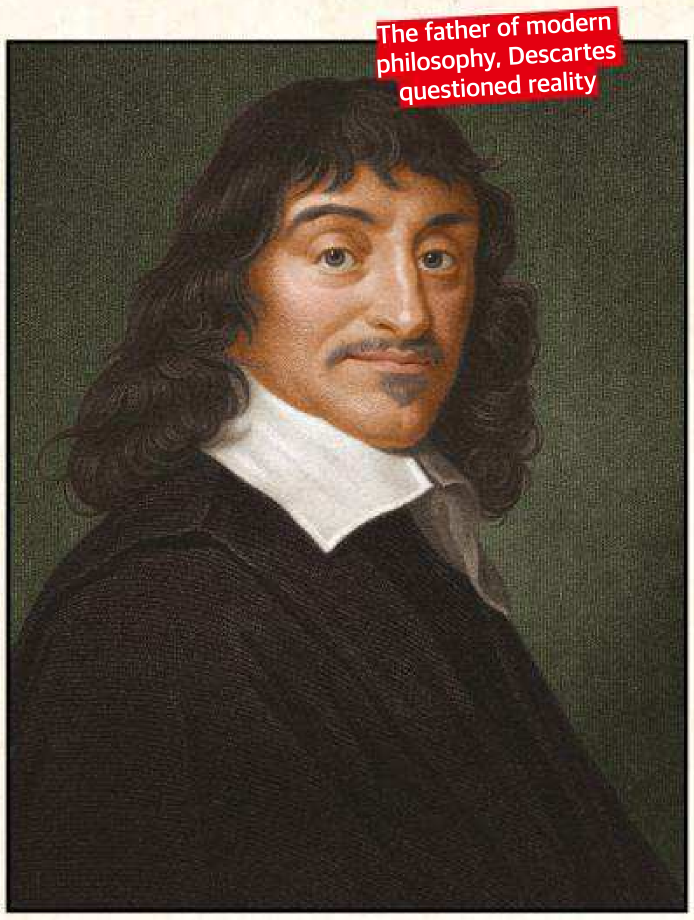


Bacon developed the first formal scientific method

FRANCIS BACON

BRITISH 1561-1626

Born into a humble family in London, Francis Bacon pushed the boundaries of human understanding of the natural world and would later become the father of the scientific method. Beginning his career in law and politics, Bacon became a British statesman and an influential member of society. As a man concerned for the good of humanity, Bacon turned to philosophy and questioned the reliance people placed on their five senses as an explanation for reasoning. In 1620, Bacon proposed the effect of outside influences on health. Rather than rely on their five senses, Bacon developed a method of experimentation to expose the ill to varying conditions, evaluating the real cause of some sickness and as a result, the formal scientific method was born.



The father of modern philosophy, Descartes questioned reality

RENÉ DESCARTES

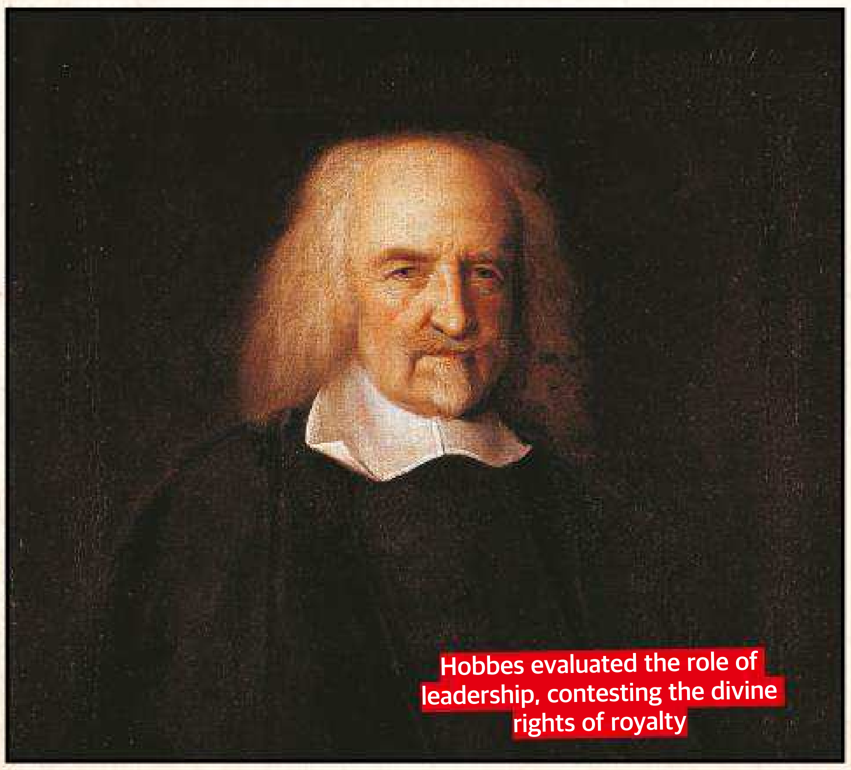
FRENCH 1596-1650

Born in France in 1596 and raised in a family of three siblings, Descartes sadly never knew his mother, due to her passing soon after his birth. Often referred to as the 'father of modern philosophy', Descartes is so prevalently remembered for writing "I think therefore I am" in 1637. It's a phrase that would not seem as indicatively profound today but during a time when the teachings of God tethered man's philosophy, it propelled the questioning of what in life was real or false. Descartes spent a great portion of his life away from France, moving north to the Dutch Republic. As a true thinker, it is believed that he would spend hours sitting in quiet contemplation, pondering over the mechanics of life itself.

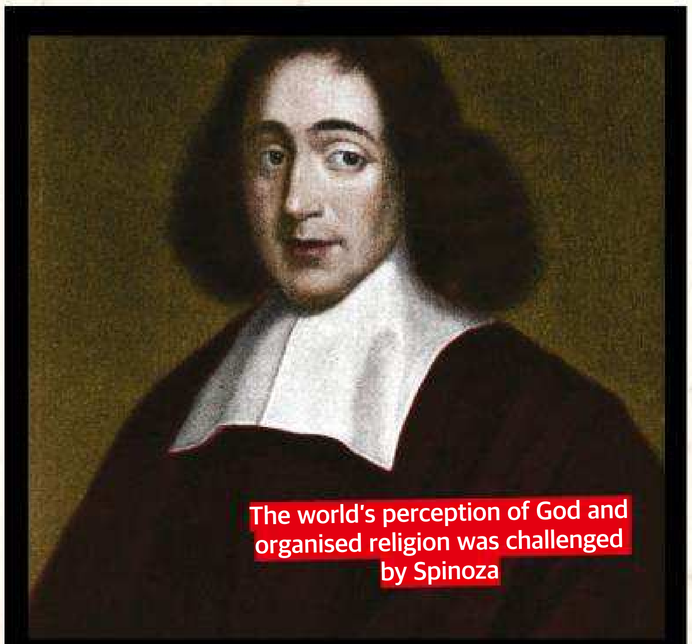
THOMAS HOBBES

BRITISH 1588-1679

The son of a village pastor, Hobbes devoted his life away from the Church and into the work of the state. As a formidable figure of political philosophy, Hobbes challenged the divine right of kings while breaking down the notion of the social contract theory. His revolutionary thinking formed after the English Civil War had torn through England from 1642, and the role of the sovereign had been challenged. In the evasion of a further public uprising, Hobbes explored human order and the power of government to avoid resulting conflicts and insecurities seen in the civil war, in what he called "state of nature".



Hobbes evaluated the role of leadership, contesting the divine rights of royalty

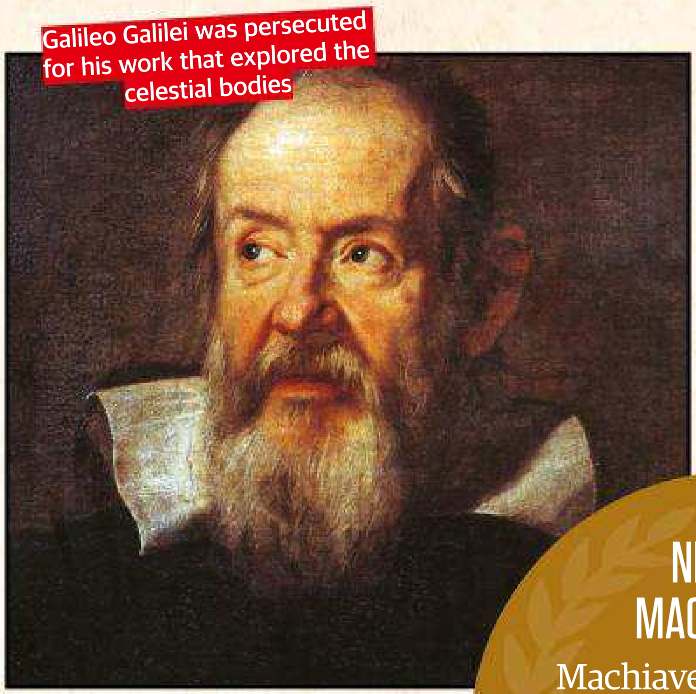


The world's perception of God and organised religion was challenged by Spinoza

BARUCH SPINOZA

DANISH 1632-1677

Born into a traditional Jewish family in Amsterdam, Spinoza followed the faith's teachings before beginning to question the world's perception of God, in this work entitled *Ethics* published in 1677. Spinoza proposed that the powerful onlooking figure of God was not that of a single entity but apart of nature itself. Through varying sciences, individuals could understand God. *Ethics* however, remained in the draw of a bedside, found after this death.


Galileo Galilei was persecuted for his work that explored the celestial bodies

GALILEO GALILEI

ITALIAN 1564-1642

Beginning his career as a man of mathematics, Galileo became a professor at the University of Pisa in 1589. Once the news of the first telescope reached him, he turned to astronomy and constructed his own. After making several astronomical discoveries, his work introduced inertia and the law of falling bodies. Disgraced by his conclusions, the Church accused him of heresy and forbade him to teach his work. Sentenced to house arrest, he published his final work, *Discourses Concerning Two New Sciences*.

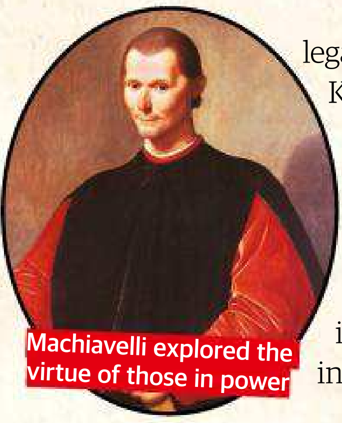
NICCOLÒ MACHIAVELLI

Machiavelli once wrote, "Since love and fear can hardly exist together, if we must choose between them, it is far safer to be feared than loved."

NICCOLÒ MACHIAVELLI

ITALIAN 1469-1527

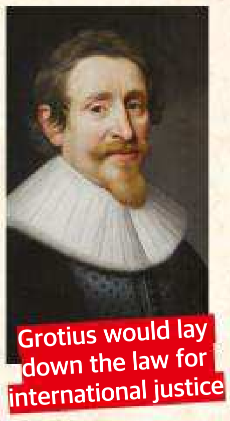
Machiavelli began his career as a secretary of Florence. However, due to political turmoil at the time, he turned his attention to commenting on political philosophy. In multiple publications, Machiavelli describes the nature of political power and the personality of such, while depicting the controversial characteristics that those in power should possess, known as their political virtue.

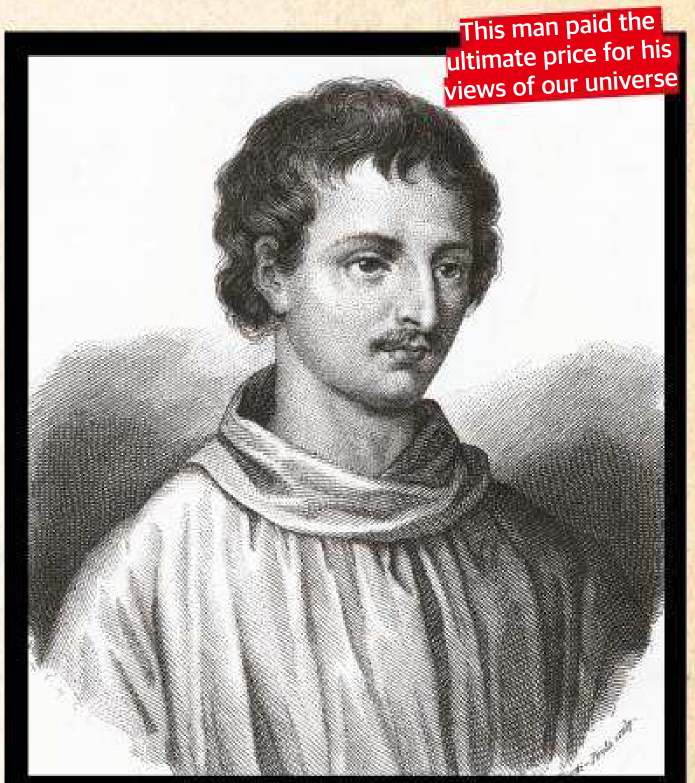

Machiavelli explored the virtue of those in power

HUGO GROTIUS

DUTCH 1583-1645

Grotius was raised in a family cemented in the Dutch Republic's elite, a position advantageous to his future legal and philosophical career. Known as the 'father of modern international law', his work promoted the potency of peace and justice through natural law. As a lawyer, Grotius laid the foundations down for the international code of law and the law of the sea in his seminal work, *The Rights of War and Peace*.

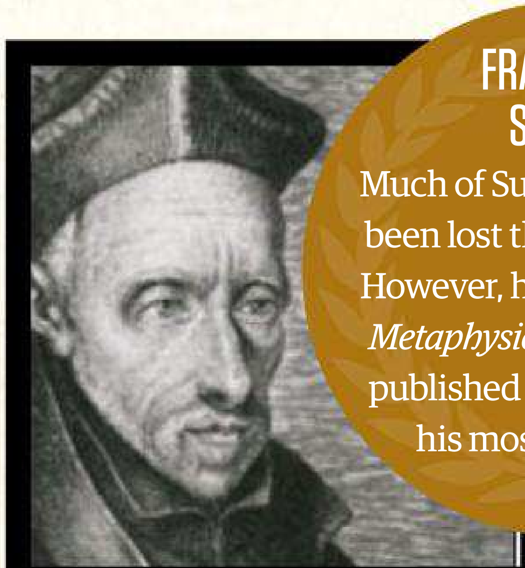

Grotius would lay down the law for international justice


This man paid the ultimate price for his views of our universe

GIRODANO BRUNO

ITALIAN 1548-1600

Bruno dedicated his life to furthering humankind's knowledge of the cosmos and challenged the commonly held belief of a finite and Earth-centred universe. As an astronomer and philosopher, his work and theories of an infinite universe were met by the wrath of religious opposition. In attempts to avoid persecution, he travelled throughout Europe to continue his work. On the back of an invitation from a Venetian patrician, Bruno returned to Italy. After reusing to retract is religiously defiant views, he was sentenced to death by Pope Clement VIII and was burned at the stake.



FRANCISCO SUÁREZ

Much of Suárez's work have been lost through the ages. However, his seminal work, *Metaphysical Disputations*, published in 1597, remains his most prestigious work.

FRANCISCO SUÁREZ

SPANISH 1548-1617

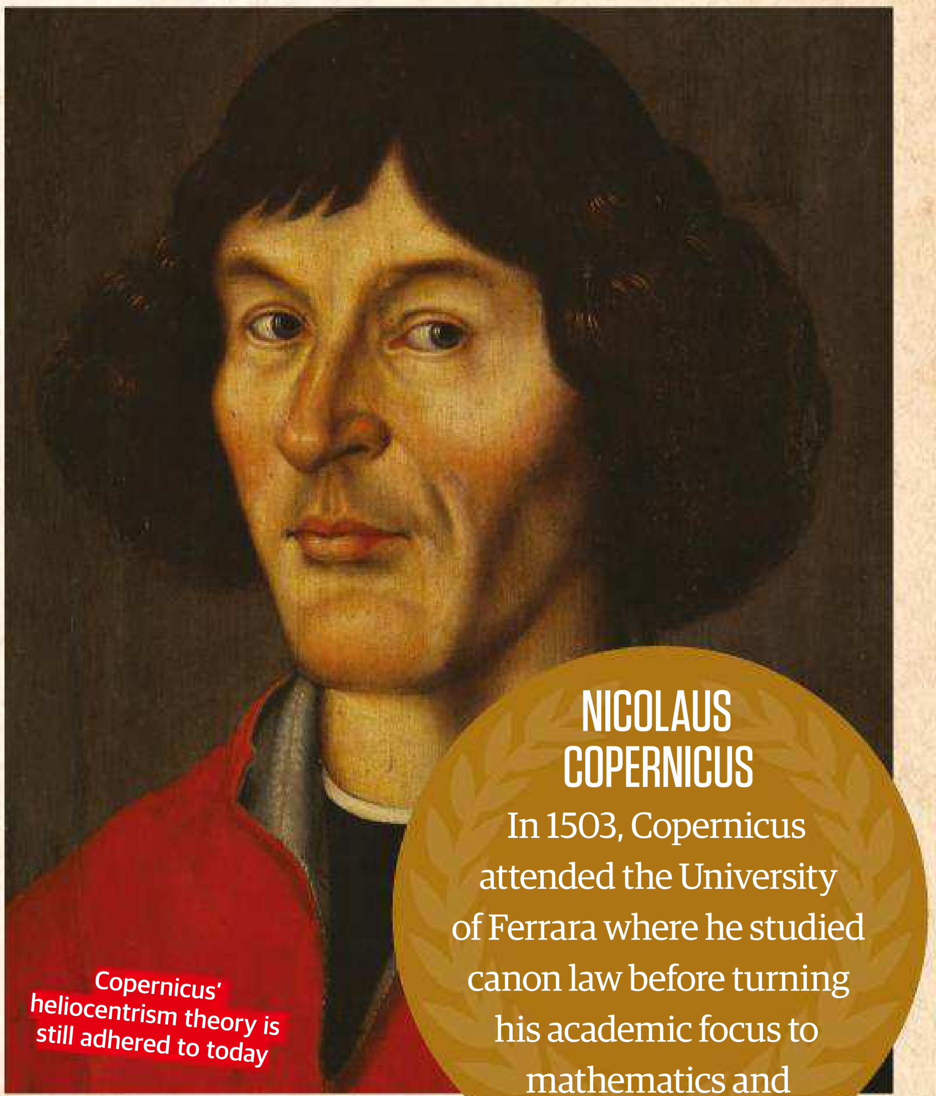
In the early years of Suárez's life, due to his seemingly slow intellect, many could not have foreseen his rise to philosophical prowess. Tackling the very fabric of our existence, Suárez explored the metaphysics and nature of being and knowledge. In his later years, as an influential philosopher, Philip II of Spain appointed Suárez as a distinguished theologian to universities in Coimbra, where he spent stayed until his death.

> "I think, therefore I am"
>
> Rene Descartes

NICOLAUS COPERNICUS

POLISH 1473-1543

Raised in a family of merchants, Copernicus become a revolutionary in astrometry when he proposed the novel idea that the Sun, rather than the Earth, was at the centre of our solar system, which later became known as Copernican heliocentrism. His work inspired the great minds of the time such as Galileo and those that would bring about the Age of Enlightenment such as Newton.


Copernicus' heliocentrism theory is still adhered to today

NICOLAUS COPERNICUS

In 1503, Copernicus attended the University of Ferrara where he studied canon law before turning his academic focus to mathematics and astronomy.

Britain & Europe

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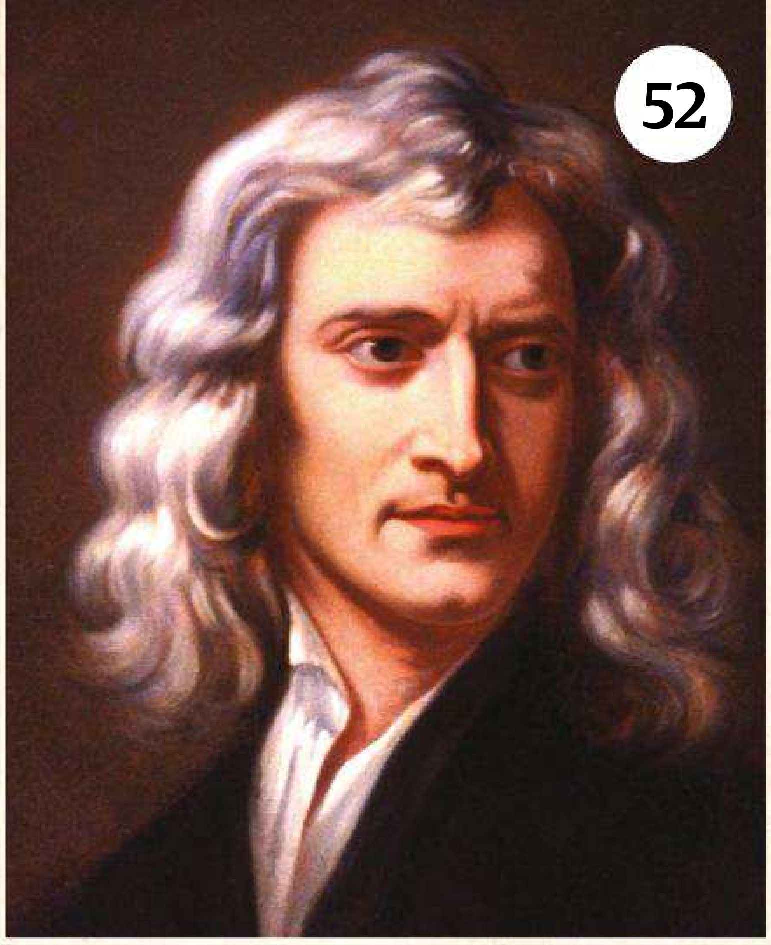

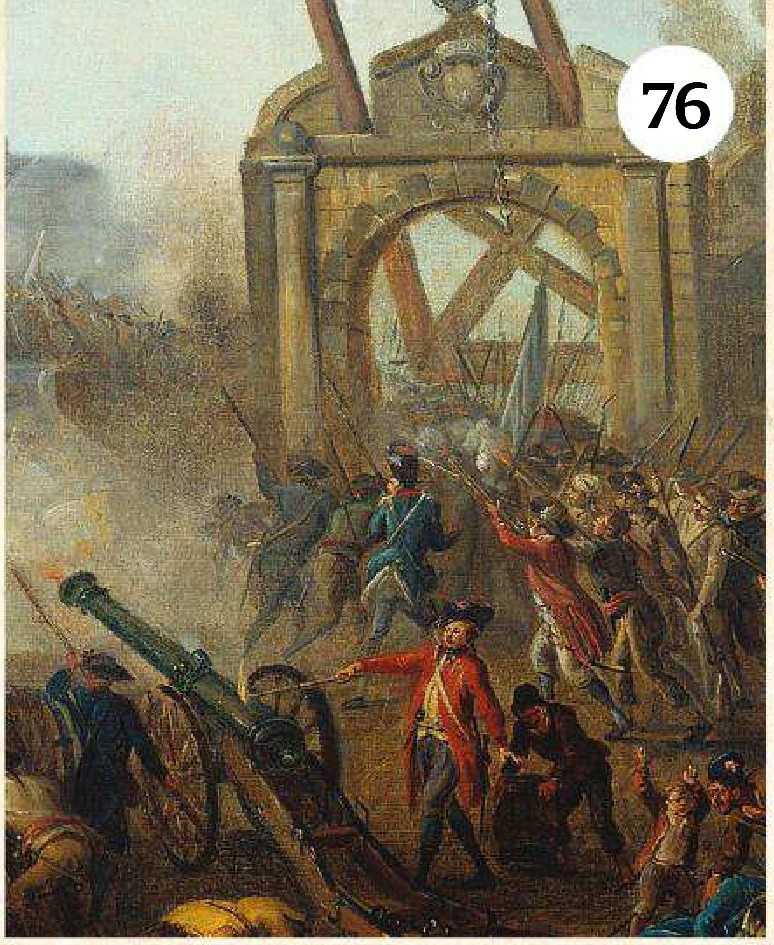

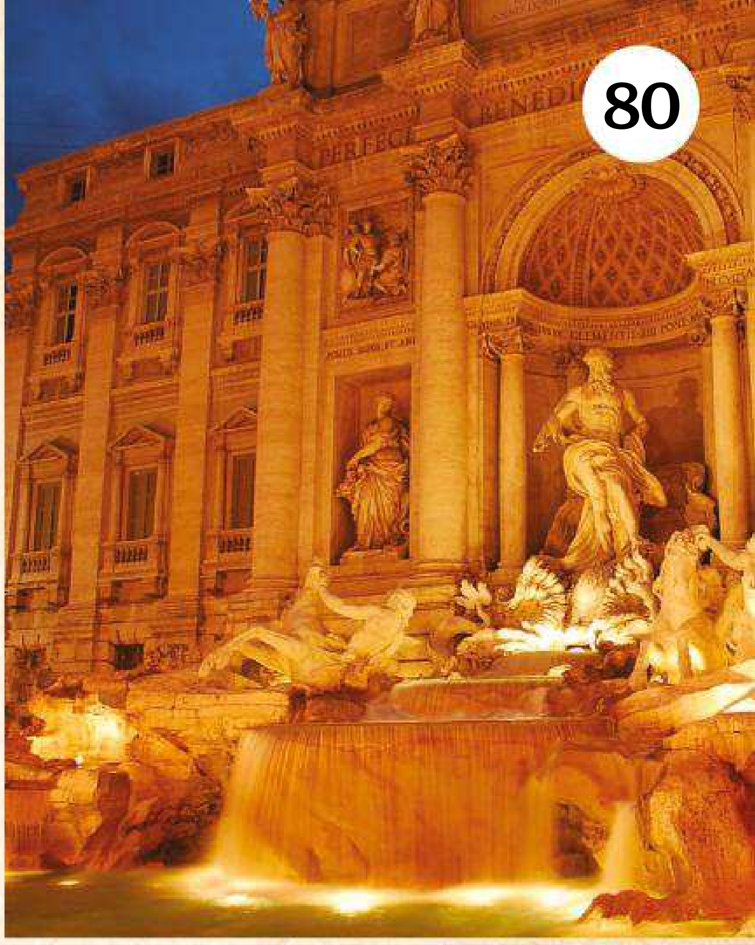

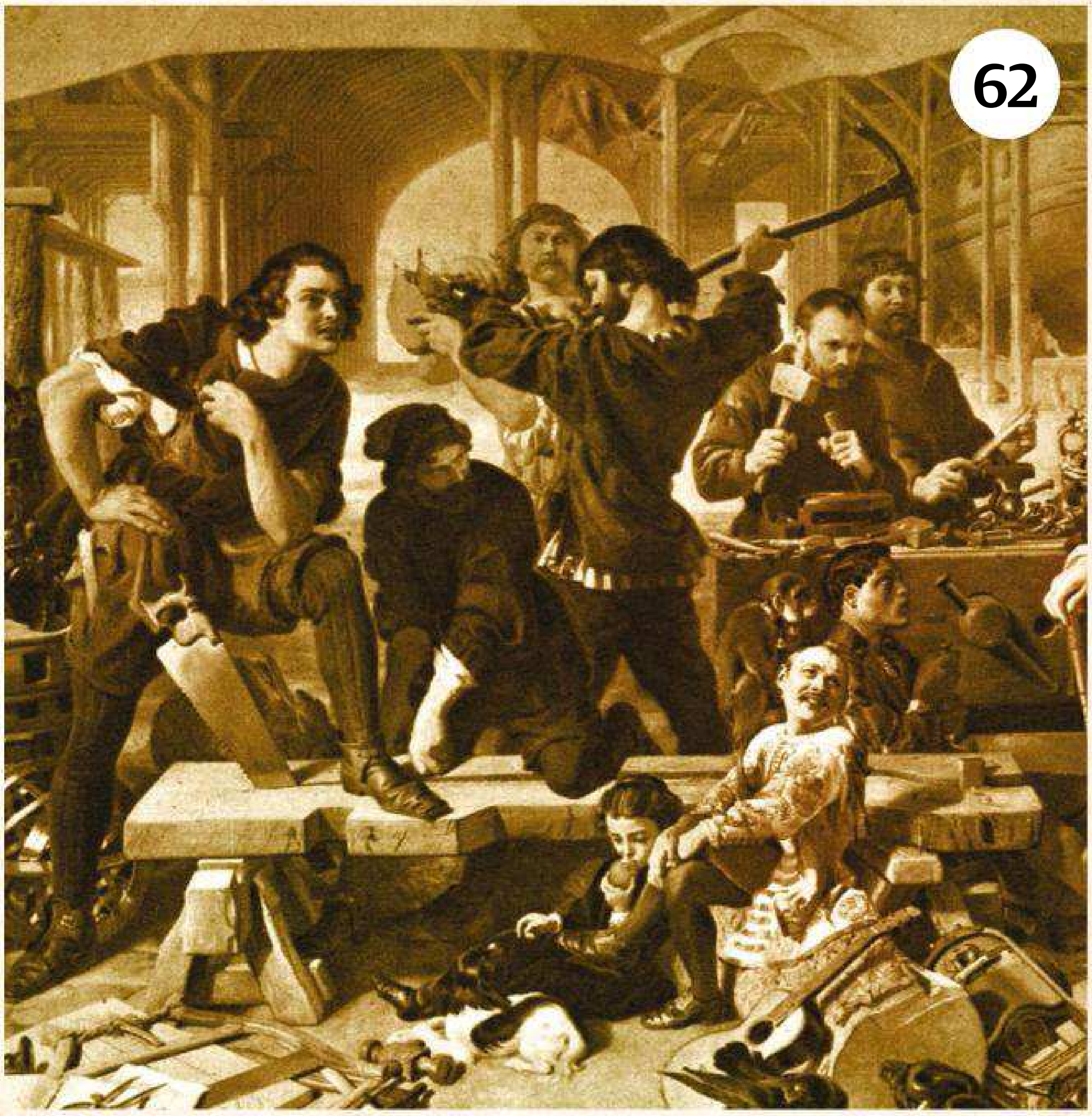

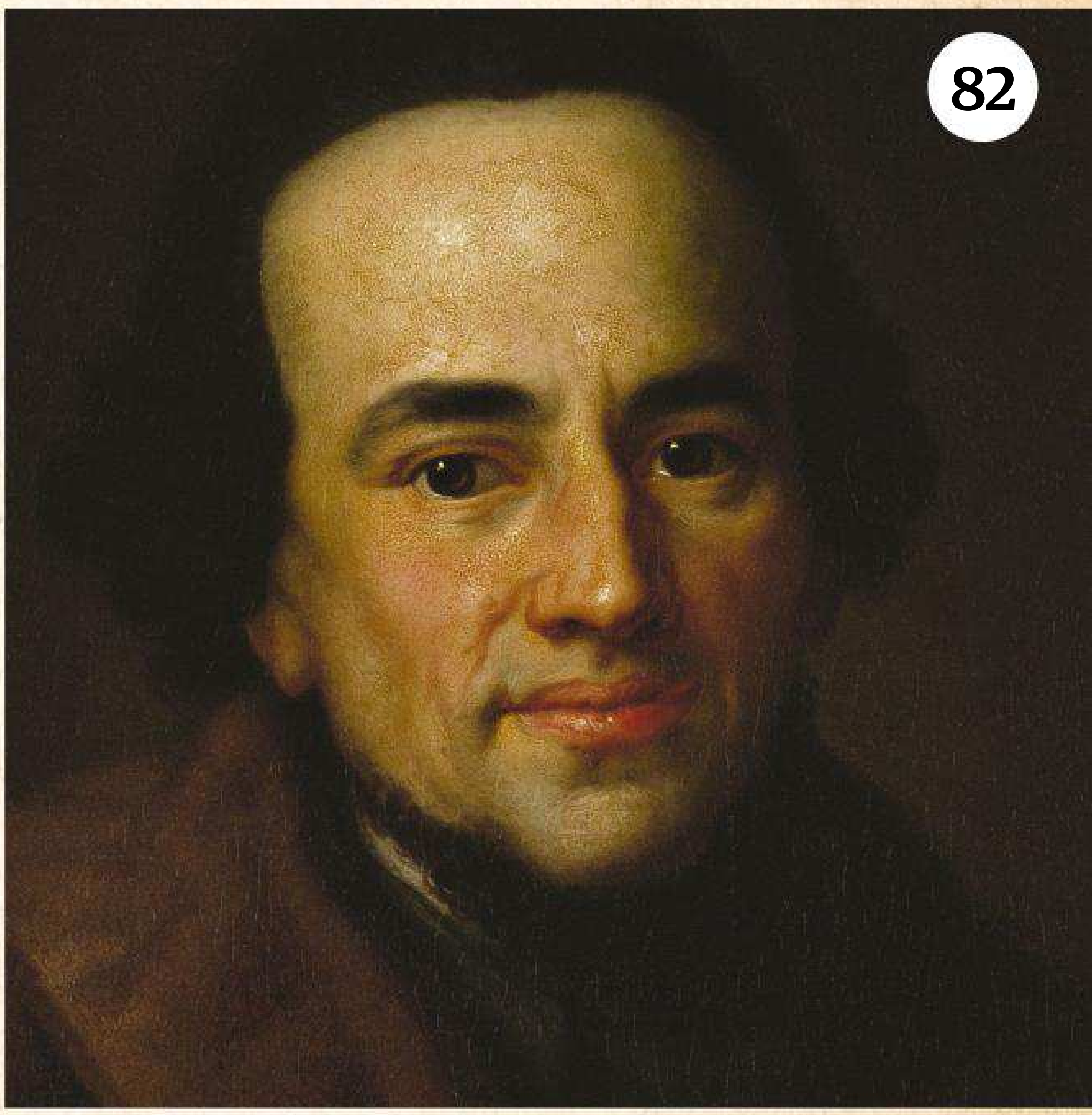

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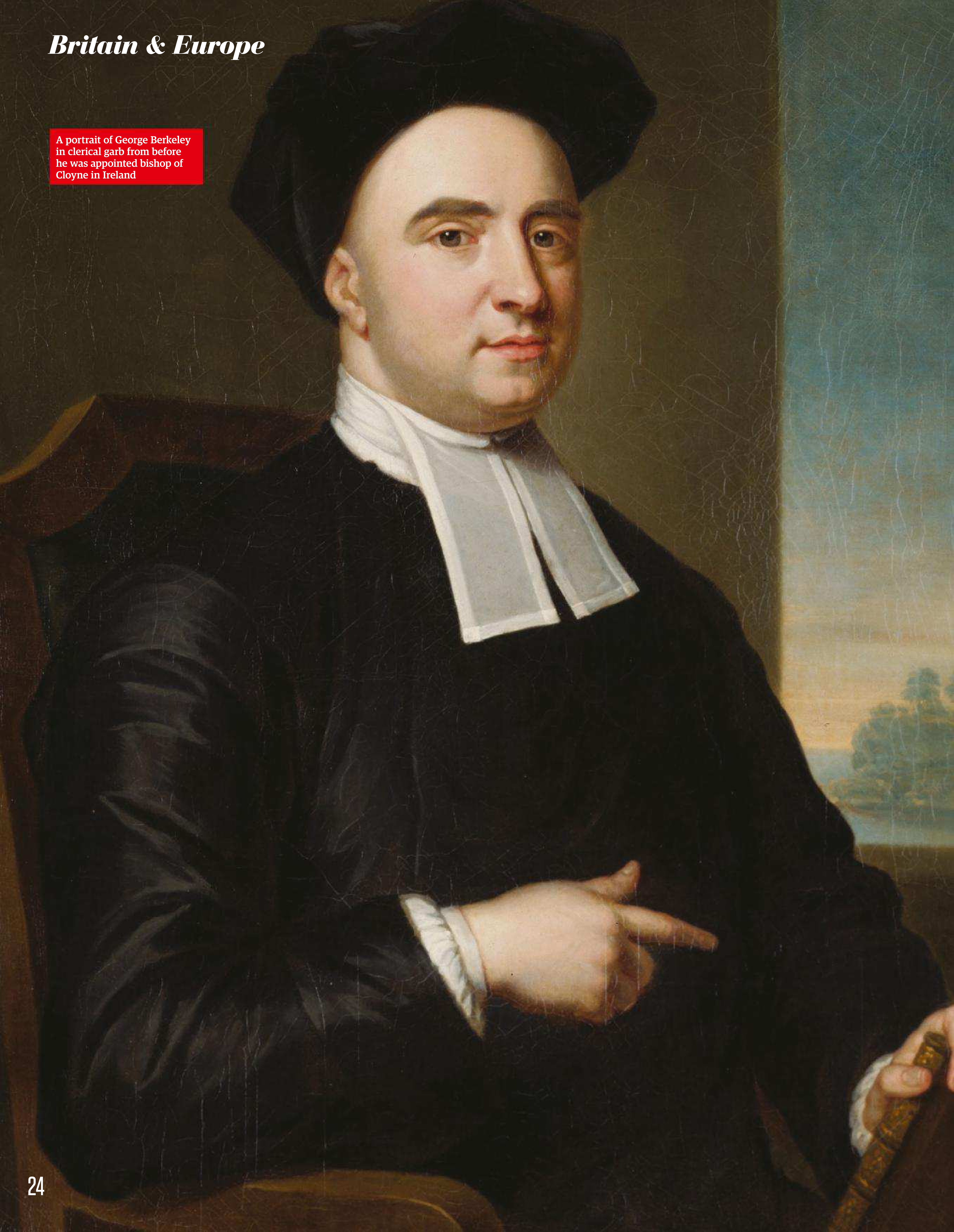


A portrait of George Berkeley in clerical garb from before he was appointed bishop of Cloyne in Ireland

The War of Ideas

In the early Enlightenment, a philosophical conflict waged between Britain and the rest of Western Europe

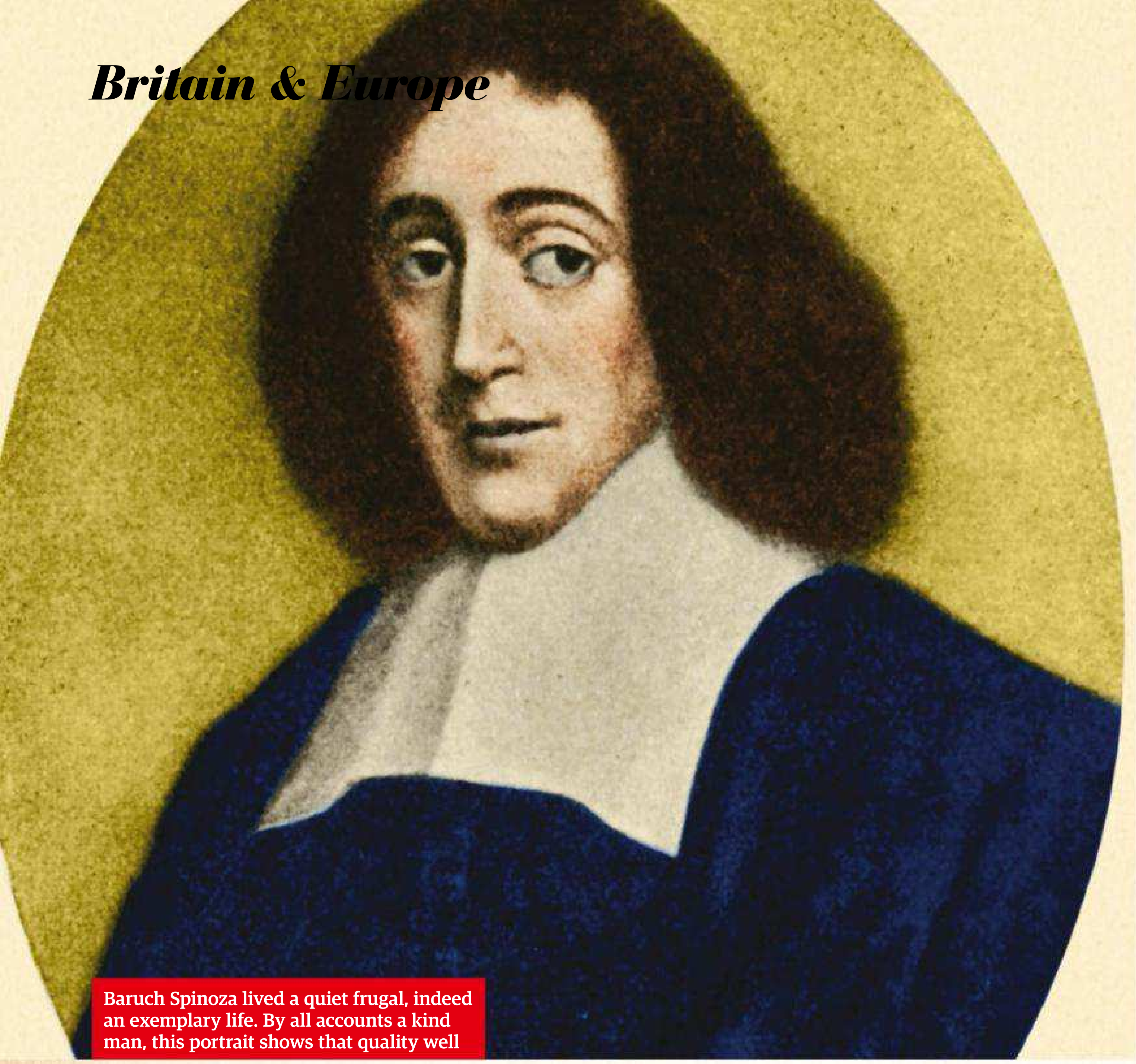
Words by Edoardo Albert

Saying that British Empiricism was opposed to European Rationalism sounds like something dreamed up in academic journals but it's actually asking something very simple. What comes first: thought or experience? The empiricists, who for various cultural and political reasons were all to start with British, argued that all our knowledge was based on what we experience through our senses: if we don't first see, hear, feel, touch or smell it, it doesn't exist. The rationalists, who were all continental philosophers, argued that knowledge derived from reason - that is, that we can think our way to the truth.

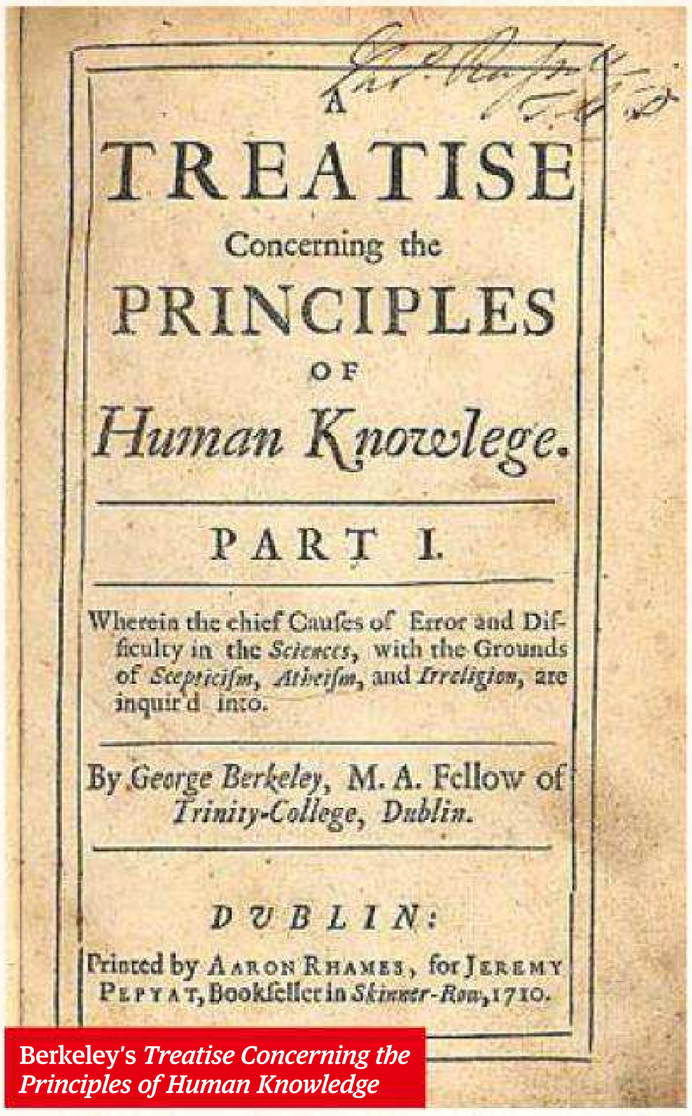
The empiricists saw human beings as completely blank slates, as a tabula rasa that was imprinted upon by only sensory experience. Meanwhile, rationalists accepted the importance of sensory experience, but also argued that some ideas are already present in our minds; that is, we simply know them to be true. After all, said the rationalists, if all that mattered was us receiving impressions from the outside world, then a photographic film should start to develop ideas about what sort of photos it preferred to take.

The first and greatest of the European rationalists, the man who shook the intellectual foundations of the world and, perhaps unwittingly, destroyed the philosophical foundations of the world into which he had been born was René Descartes. Descartes came into a world still struggling with the cataclysmic disruption of the Reformation, which had both torn the unified body of medieval Christendom in half and then, in the Wars of Religion of the 16th and 17th centuries, provided graphic, bloody proof that men disagreed about the most fundamental aspects of life and death. In such a world, Descartes strove to find a firm basis of sure knowledge upon which all might agree. "I observed with regard to philosophy that despite being cultivated for many centuries by the best minds, it contained no point which was not disputed and hence doubtful." But Descartes, who was a brilliant mathematician, saw that in mathematics it was possible to bring agreement: every mathematician could follow the steps of Euclid's theorems and see that the conclusion was true. Why could the same certainty not apply in philosophy? Because the senses, from which the data of philosophy was derived, could be deceived. Think of a mirage. The senses show water but, drinking, we find only sand.

What's more, how do we know anything is real anyway? Most of us have experienced a dream so real we weren't sure if we were awake or dreaming. Descartes argued that there was no way, based just on our sense experiences, to tell if the world we experience around us is real at all. According to Descartes, there was only one red pill that could strip away illusion and provide certainty: "Let the demon deceive me as much as he may… I am, I exist is certain, so long as it is… conceived in my mind." This is the basis of the famous phrase "I think, therefore I am" although, being philosophy, it's naturally more complex than that: Descartes was basically arguing that by doubting one's existence one proved the reality of the person



Baruch Spinoza lived a quiet frugal, indeed an exemplary life. By all accounts a kind man, this portrait shows that quality well



A
TREATISE
Concerning the
PRINCIPLES
OF
Human Knowlege.

PART I.

Wherein the chief Cauſes of Error and Difficulty in the *Sciences*, with the Grounds of *Scepticiſm*, *Atheiſm*, and *Irreligion*, are inquir'd into.

By *George Berkeley*, M. A. Fellow of *Trinity-College*, *Dublin*.

DUBLIN:
Printed by Aaron Rhames, for Jeremy Pepyat, Bookſeller in *Skinner-Row*, 1710.

Berkeley's *Treatise Concerning the Principles of Human Knowledge*

doing the doubting - doubt cannot exist without the doubter. Having discovered certainty in doubt, Descartes went on to construct his version of rationalism on this foundation, including the existence of God and the pre-existing knowledge of basic logical propositions.

But no, answered John Locke, that's where you're wrong, René. There is no pre-existing knowledge. We are born as blank slates. Everything we know is a result of our sensory experiences and our reflections upon these experiences. In the mind, there's no there already there. Locke thus formulated the foundation of empiricism which, because its key proponents in the 18th century were British, became known as British empiricism.

Locke was born in the same year as Baruch Spinoza, one of the great rationalist philosophers. Both came of age in the immediate aftermath of the Wars of Religion (the Peace of Westphalia in 1648 brought the Thirty Years' War to an end, and the English Civil War ended in 1651). Spinoza was a Jew, living in Amsterdam, but when he would not recant his philosophical views he was cursed and expelled from the Jewish community there. He then led a peripatetic life, making money from grinding lenses while corresponding with the continent's intellectual circles. While his metaphysics, which developed the ideas of Descartes, was rationalist and very different from the ideas of Locke, the two men's ideas on ethics were very similar. Looking back on the conflagration that had enveloped Europe in the first half of the 17th century, they both espoused political and religious tolerance.

John Locke's work was, in many ways, the philosophical expression of the new science that, by way of Newton's laws of motion and gravity, had taken the heavens and made them explicable. But by denying the essential existence of anything except quantity - 'red', for instance is simply a subjective response to an external stimulus and has no meaning in itself - Locke was turning the universe into a giant clockwork mechanism, devoid of life, light, meaning. George Berkeley, an Irish clergyman who in later life became bishop

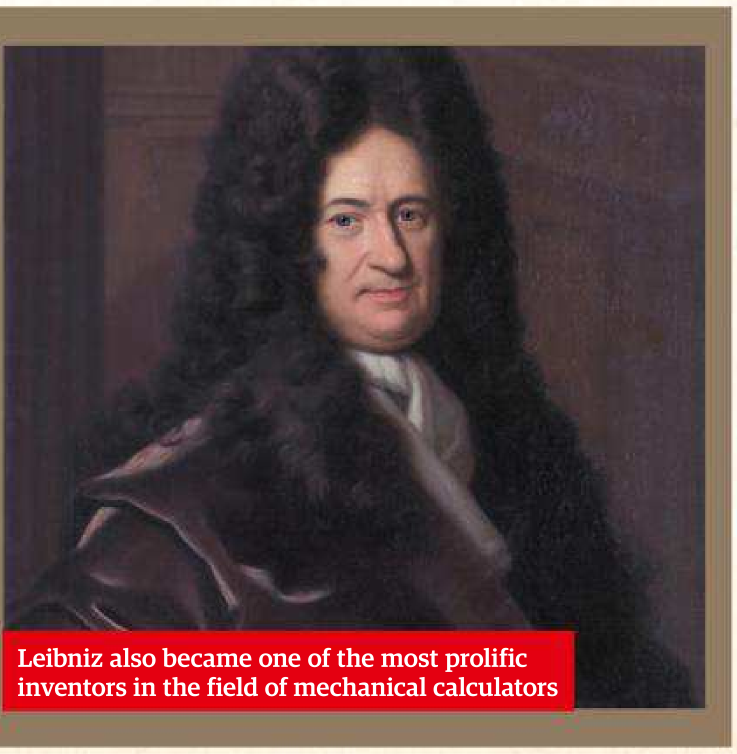
The calculus competition

Wilhelm Leibniz and Isaac Newton stooped to dirty tricks in their dispute over the invention of calculus

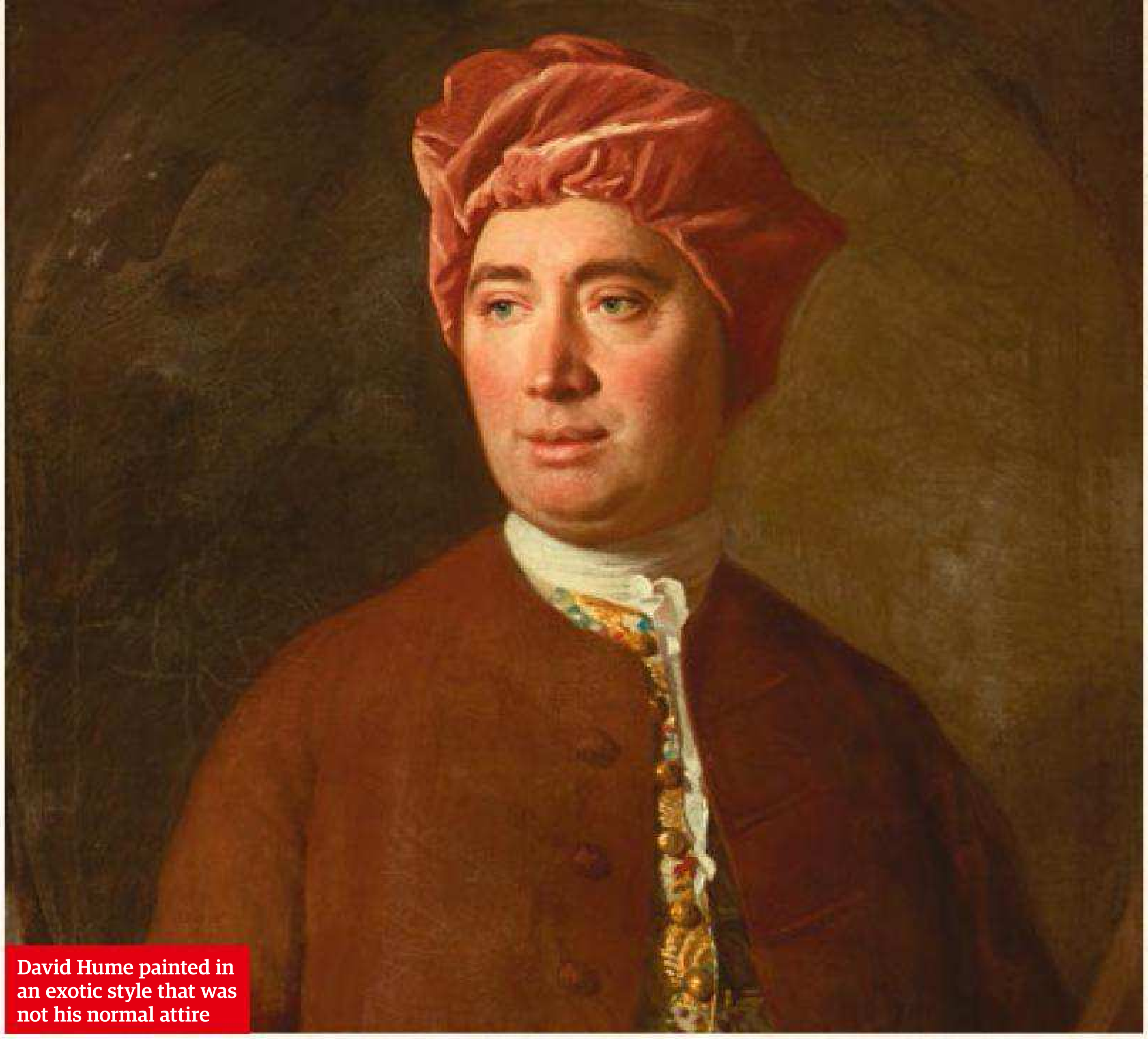
In science, there's no glory for second place. So when it came to claiming priority on the discovery of calculus, one of the key tools of modern mathematics, it's little surprise that a dispute developed between Wilhelm Leibniz and Isaac Newton, both of whom had discovered methods of calculus independently, as to who had been first. But what is surprising is the dirty tricks both men stooped to.

By the time the dispute broke into full force in 1711, Newton was president of the Royal Society which had published an investigation into the question of who had invented calculus first that roundly proclaimed Newton its originator and Leibniz a fraud. The impartiality of this report was somewhat compromised when it was revealed that Newton had written its conclusion himself. As for Leibniz, he was not above altering the dates of his letters and notes to back up his claim for priority.

It is accepted that both men independently invented calculus, although it is Leibniz's notation that has become the standard method. Looking at the dispute is a salutary reminder that two of the most intelligent men in history may still stoop to lies, evasions and slander in pursuit of glory and to do down an intellectual rival: a playground spat between two superbrains.



Leibniz also became one of the most prolific inventors in the field of mechanical calculators



David Hume painted in an exotic style that was not his normal attire

"But what, said Berkeley, could prove that the ideas of the mind actually represent the world out there?"

of Cloyne in Ireland, meaning that he is almost always known as Bishop Berkeley, was revolted by this vision of the universe as simply a giant machine. What was more, it was a vision that was undermined by the very axiom upon which Locke had built it. For Locke knew that the ideas formed in our minds of the external world could be mistaken: the world of things out there was ever separate from the world of experience and ideas within. But what, said Berkeley, could prove that the ideas of the mind actually represent the world out there? The simple, breathtaking answer was that nothing could prove that our ideas, our experience of the world actually represent the world as it really is. All we know for certain are our ideas, our experiences. Material things don't exist. What exists are ideas and we exist as ideas in the mind of God, and it is God who, by thinking the universe, creates it.

It's a striking idea and one that was far in advance of a science that still saw the universe as composed of little balls of matter flying around in predetermined circles. Berkeley's ideas fit much better with today's quantum physics, under which thought experiments such as Schrödinger's cat illustrate the idea that a possibility is only actualised when it is perceived. What's even stranger about Berkeley's thought was that he was an empiricist: he did not believe in the mind knowing things independent of the senses.

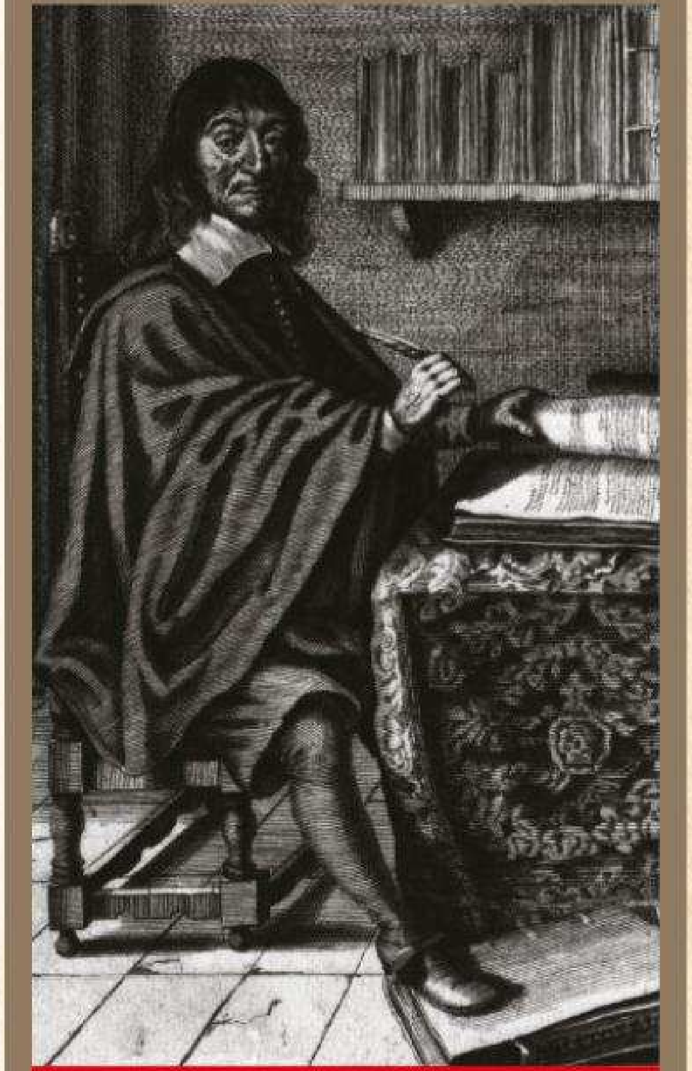
But in the ongoing argument that underlies philosophy, Gottfried Wilhelm Leibniz answered back for the rationalists. Leibniz had an astonishing breadth of interests and his work on mathematics and logic was ground breaking. But it was his belief that the universe was rational and understandable that underlay his work and led to his famous principle that, appearances notwithstanding, we live in the best of all possible worlds. Voltaire, the leading figure of French intellectual life in the 18th century, lampooned the idea mercilessly in *Candide*, one of the few books to still be funny 250 years after it was written. However, in this, as in many other areas, Leibniz might prove to have the last laugh, as physicists wrestle with a universe apparently fine-tuned for life.

The last and most thorough going of the British empiricists was David Hume. A Scot, Hume followed Locke and Berkeley's belief that there are no pre-existing ideas in the mind, but then went further, arguing that it is impossible to know what really is out there to cause the sequence of perceptions that is our mental experience. So complete was his scepticism that, seeing a flower, he said that we do not know that it continues to exist when we turn away from it. Indeed, most of what we think as true are merely associated events: because we have seen the sun rise on every day of our lives then we think it will rise tomorrow, but there is no necessity that it should do so. While this might seem to remove any basis for action whatsoever, Hume said that it was necessary to still live practically, day to day. "In all the incidents of life we ought still to preserve our scepticism. But we should also dine and play backgammon with our friends."

Descartes' oven

Sleeping in an oven does strange things to a mind

On the night of 10 November 1619, the 23-year-old René Descartes, a soldier in the army of the duke of Bavaria despite being a Frenchman, was stationed in Neuborg on the River Danube. It was bitterly cold and Descartes, a slight man sensitive to the cold, sought escape from the wind by, according to his account, sleeping in an oven. Later writers have questioned if he really meant an oven, arguing that he was referring to a room that was heated by an oven. After all, there aren't that many ovens that a grown man can comfortably fit into. However, what happened next suggests that Descartes might have meant exactly what he said. For in this dark space, cut off from the rest of the world, he had a series of three dreams that proved formative of his future intellectual life. In these dreams, he believed a divine spirit had shown him the secret of analytical geometry – the Cartesian system we use today – as well as revealing that all that is true is joined together. Thus by finding one certain truth, he could go on to reveal all truth. It was not long after these visions that Descartes formulated the basis of his method of philosophy, the certainty that "I am, I exist". As to the importance of the oven, Descartes, with his knowledge of Plato, would surely have seen its dark embrace as the modern restatement of the Cave from which Plato ascends to true knowledge of the eternal forms.



This 1648 portrait of Descartes by the Dutch master Frans Hals conveys the cool integrity of his thought

The Scottish Enlightenment

Scotland's radical embrace of new ideas in fields as diverse as the economy and agriculture was overshadowed by its European counterparts but had an ever wider-ranging impact

Words by June Woolerton

Voltaire summed up the huge impact that the Scottish Enlightenment had not just within its own borders, but around the world. The French philosopher said, with confidence, "We look to Scotland for all our ideas of civilisation". For during the 18th century, Scottish thinkers, artists and scientists were challenging ideas and producing innovations that would make a mark across the globe, inspire changes in societies thousands of miles away and retain an influence for centuries to come.

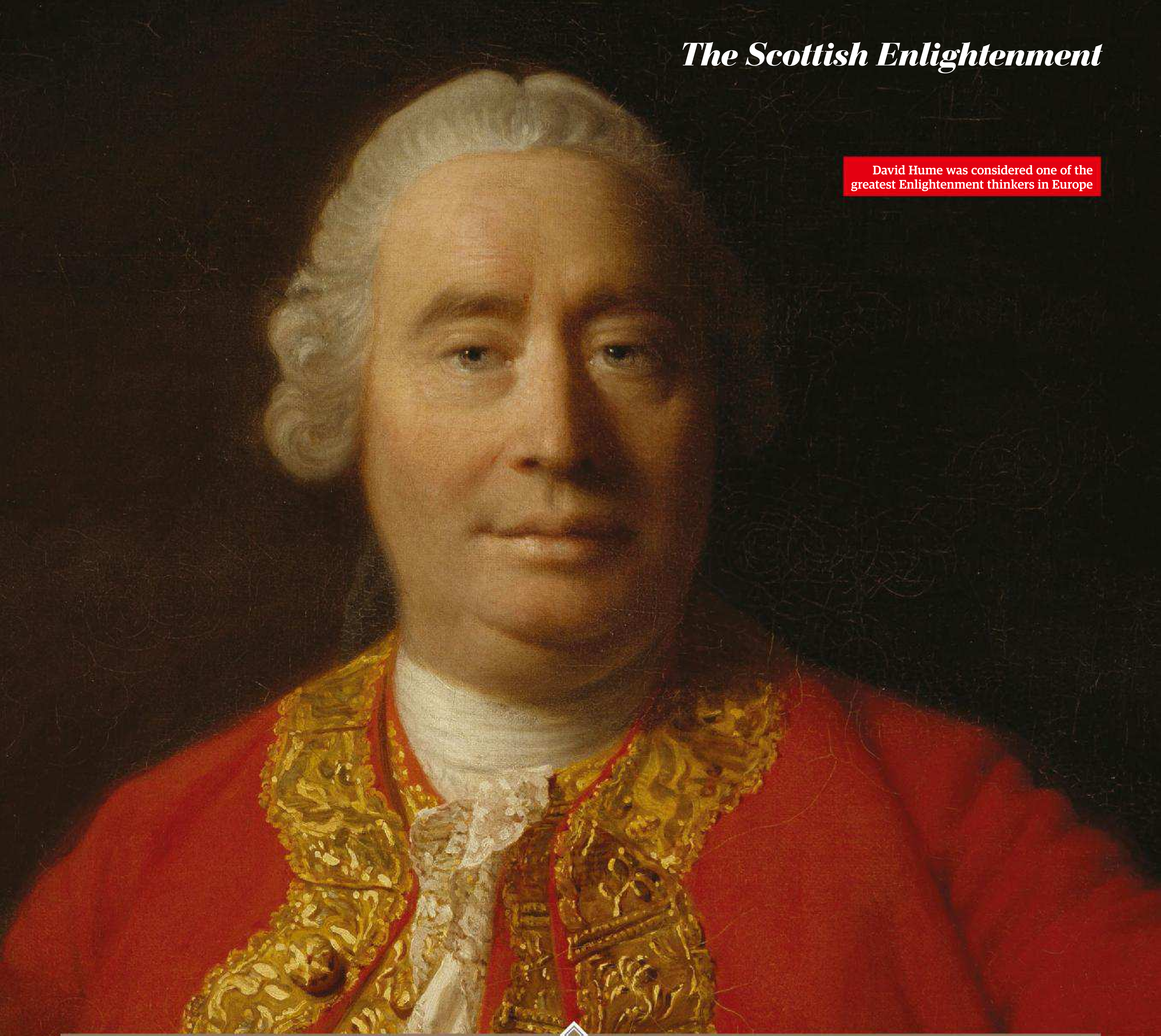
The Scottish Enlightenment was as unexpected as it was important. At the start of the 18th century, a depressed economy and political unrest had led to civil unease, while in 1707, the union with England meant the end of independence, parliament and a separate monarchy. However, it was also a starting point for the flourishing in intellectualism that would lead to Scotland's dominance in the Age of Enlightenment.

The union of 1707 made London the centre of political life. The noble and upper classes began to move south in pursuit of power, leaving the way clear for the middle class, with its preponderance of lawyers, intellectuals and medical experts, to dominate. The country had a population of just one million people, with cities like Edinburgh and Glasgow home to many of them, but once the aristocrats who had held sway for decades disappeared, those they left behind began to make their mark.

The sudden rush of thought and invention that poured out of Scotland in all areas of life in the 18th century was also helped by the strong education system that had been established in the country in the preceding years. The 17th century had seen the development of a network of parish schools in parts of Scotland, especially the Lowlands and major cities, which ensured that education was more far-reaching than in other parts of Europe. The country also had four universities, compared to two in England, and by the first part of the 18th century, it boasted a healthy and growing intellectual sphere.

Economic development provided a stability that allowed intellectual pursuits to flourish. Banking began to grow and agricultural reform had some success. But it was in the cities that the main benefits were felt, with the major areas, especially Glasgow, developing strong international trade links, particularly with the colonies. This would be instrumental in the growth of Scotland's reputation as an Enlightenment hotbed as ideas were taken overseas and shared among populations that were agitating for change.

That these ideas permeated so widely in Scottish society was due, in part, to the way that debate was fostered and shared. As well as the universities at Edinburgh, Aberdeen, Glasgow and St Andrews, there was a growth in libraries and salons where debate could take place and which became increasingly popular throughout the 18th century. As well as frequenting the taverns of the Old Town in Edinburgh, leading thinkers also had access to a growing range of clubs for their intellectual debates. The Easy Club in Edinburgh was among the first. Founded in 1712, its creator was printer



David Hume was considered one of the greatest Enlightenment thinkers in Europe

The Glasgow Tobacco Lords

They brought untold wealth to their home city but their money was made through controversial means

They made millions and some of their money went into funding the art and education that helped Scotland become a shining light of the Enlightenment. But one of the era's most famous thinkers had little time for the men who became known as the Glasgow Tobacco Lords.

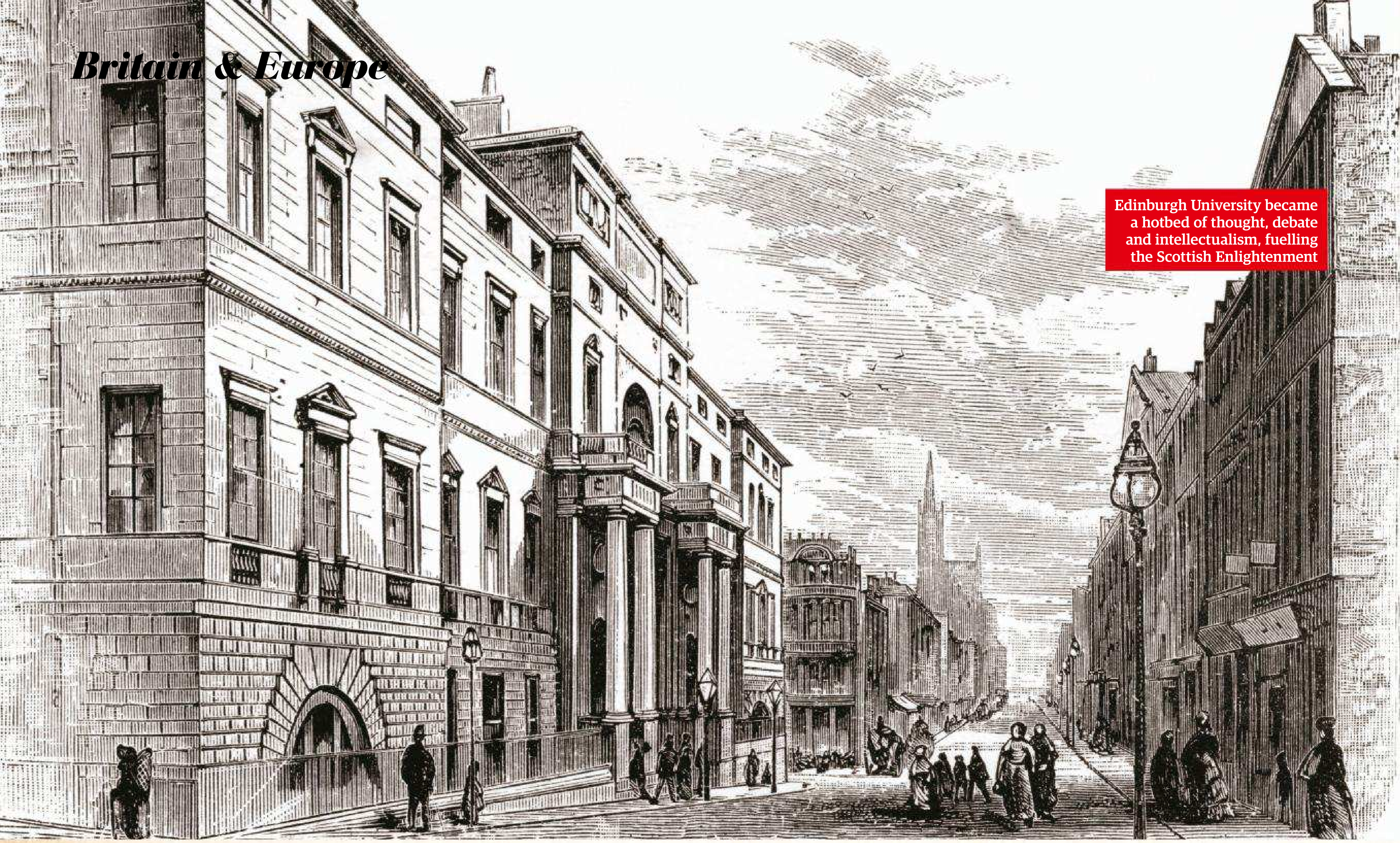
Adam Smith attacked them as self-serving and saw their trade as detrimental to society. Smith, of course, had no idea about the health impact of tobacco. His concern was that the traders who made Glasgow's fortune in the 18th century were putting profit before everything else.

The Tobacco Lords had got rich by exploiting the opportunities brought when English trading routes with America were opened to Scottish merchants after the 1707 Act of Union. 40 years later, France granted Glasgow a monopoly over all tobacco imports into its territories. By 1750, around half of all Europe's tobacco imports came in through the Glasgow area.

But the tobacco they bought came from plantations worked by slaves, some of whom had been captured when Scottish boats docked in Africa on their route between America and Europe. While the Tobacco Lords adopted an almost aristocratic lifestyle with their new riches, Smith questioned how much pain their gain brought with it.

TOBACCO WAREHOUSE

Tobacco warehouses soon filled the streets of Glasgow, bringing previously unimagined wealth to some



Edinburgh University became a hotbed of thought, debate and intellectualism, fuelling the Scottish Enlightenment

Thomas Ruddiman who had been educated at the University of Aberdeen and had already published several works of his own. Other famous Edinburgh meeting places included the Select Society, which began with 15 founders but had grown to 83 members within a year and which then grew into the famous Poker Club that counted some of the Scottish Enlightenment's leading thinkers among its regular attendees.

By the time the Poker Club was established in 1762, Edinburgh was turning into one of Europe's Enlightenment capitals. Described by Tobias Smollett as a "hotbed of genius" and nicknamed the "Athens of the North", the Scottish capital attracted many of the best thinkers in the country, while its art and architecture began to reflect the changes the Enlightenment brought with it. From the 1750s onwards, new buildings sprung up to reflect the growing status of the city and, in the words of George Drummond, who was charged with overseeing the changes, "adorn it with public buildings, which may be for the national benefit". And Edinburgh could look to homegrown talent to provide inspiration. The architect Robert Adam was already making a name for himself with his designs, which would spread across western Europe in the following years.

His buildings, and the other new designs that began to spring up across the city, would soon echo with debate that reflected the explosion of thought based on rationalism and empiricism that was dominating intellectual life in Scotland. Among those who took new houses in the new style was one of the most celebrated thinkers and empiricists of the age, David Hume, whose dinner parties in one of the new houses built in the city attracted some of the great intellectuals of the time and whose own career showed how important sharing ideas across borders had become to the growth of the Enlightenment.

Born in Ninewells in Berwickshire in 1711, Hume had taken a job as a merchant's assistant and travelled to France. On his return, aged just 28, he published one of the 18th century's most famous and influential works, *A Treatise of Human Nature*.

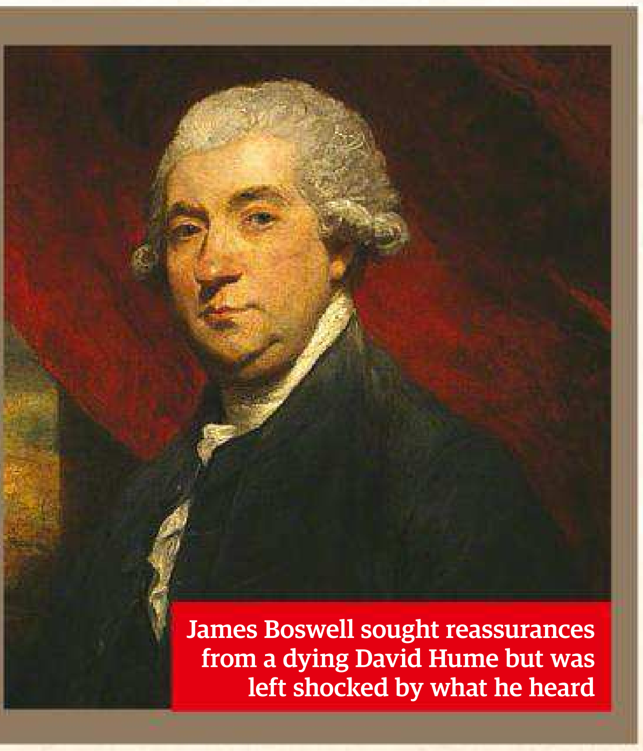
Death and the Enlightenment

One of the last conversations of the Scottish Enlightenment's most famous thinkers caused controversy even after his death

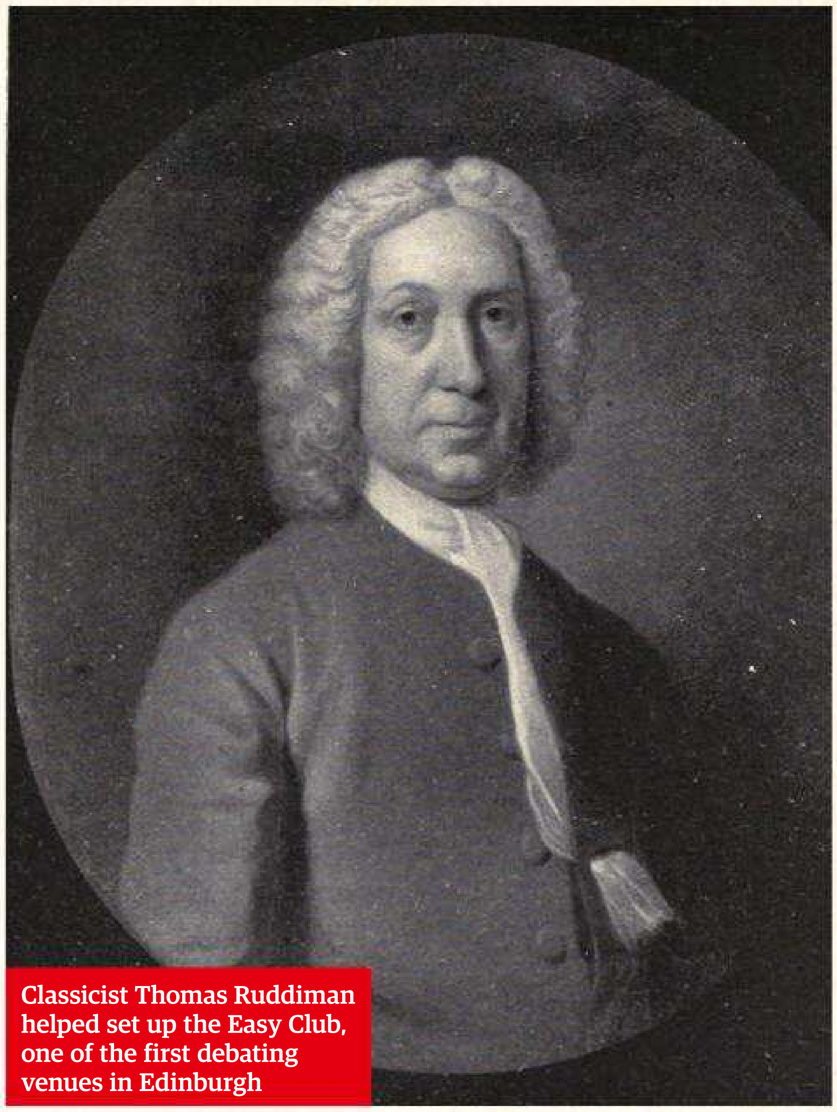
The Scottish Enlightenment's most celebrated thinker, David Hume, made no secret of his lack of religious faith. It got him into trouble on more than one occasion but he held firm. As he lay dying, many in his adopted home city of Edinburgh wondered if he would change his mind. Among them was the celebrated writer James Boswell, who was so desperate to hear Hume confirm he believed in an afterlife that he engineered a visit to his deathbed.

He was disappointed. Hume, known for his calmness, was as serene as ever and as convinced as he always had been that there was no deity and no world after the one he currently occupied. He told his visitor that if he found out that someone was religious, he immediately counted them as a rascal, adding it was "most unreasonable" to think someone might live forever.

Boswell was so disturbed he sought reassurance from Samuel Johnson but the crisis his visit produced was overshadowed by the controversy caused by a farewell interview between Hume and Adam Smith. Smith later wrote that Hume had remained wise and virtuous to the end. It caused uproar, with many attacking him for showing support for a nonbeliever. Even in the brave new world of the Scottish Enlightenment, some orthodox beliefs held firm.



James Boswell sought reassurances from a dying David Hume but was left shocked by what he heard



Classicist Thomas Ruddiman helped set up the Easy Club, one of the first debating venues in Edinburgh

The President's House in Princeton, New Jersey, where Scottish Founding Father John Witherspoon lived

> "Hume argued that emotion dictated all human actions rather than reason and that passion could override rational thought"

Hume argued that emotion dictated all human actions rather than reason and that passion could override rational thought.

He embraced philosophy and politics, and he showed himself to be a sceptic with a healthy disregard for traditional faith and orthodox beliefs. He saw morality as a partnership between human emotion and reason. In 1748, he published *Of Miracles* in which he questioned stories from the Bible, arguing that all miracles must have some kind of scientific explanation as experience can be the only thing of which we can be certain.

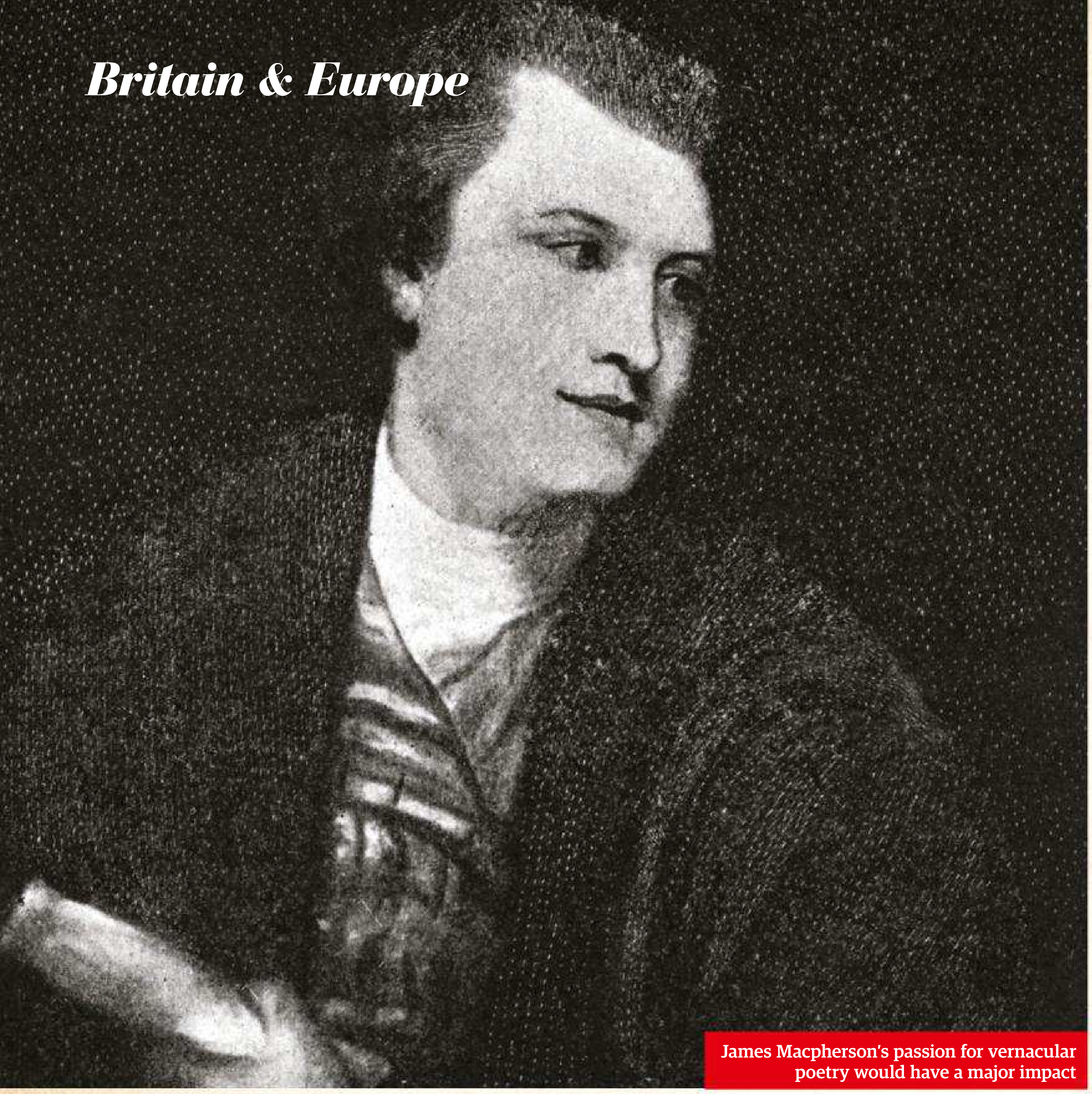
His impact was huge and can be seen in the work of some of the continent's best known Enlightenment thinkers with Immanuel Kant proclaiming he had invigorated his intellectual interests. But while his own influence was extensive, he, too, spent his time listening to and debating the arguments of other celebrated philosophers. Among the guests at his Edinburgh dinner parties was Adam Smith, whose ideas still hold sway today.

Born in Kirkcaldy in 1723, Smith studied at the University of Glasgow and went on to hold the chair of moral philosophy there between 1751 and 1764. One of his main areas of interest was how money changed society and in 1776 he published his most famous work, *An Inquiry into the Nature and Causes of the Wealth of Nations*. His work, often cited as the first study of modern economics, looked to the impact on society of the economic changes taking hold in the 18th century. Smith examined the kind of society that the growth in free trade would engender and looked to the changes it would bring to people's rights as well as their material lives.

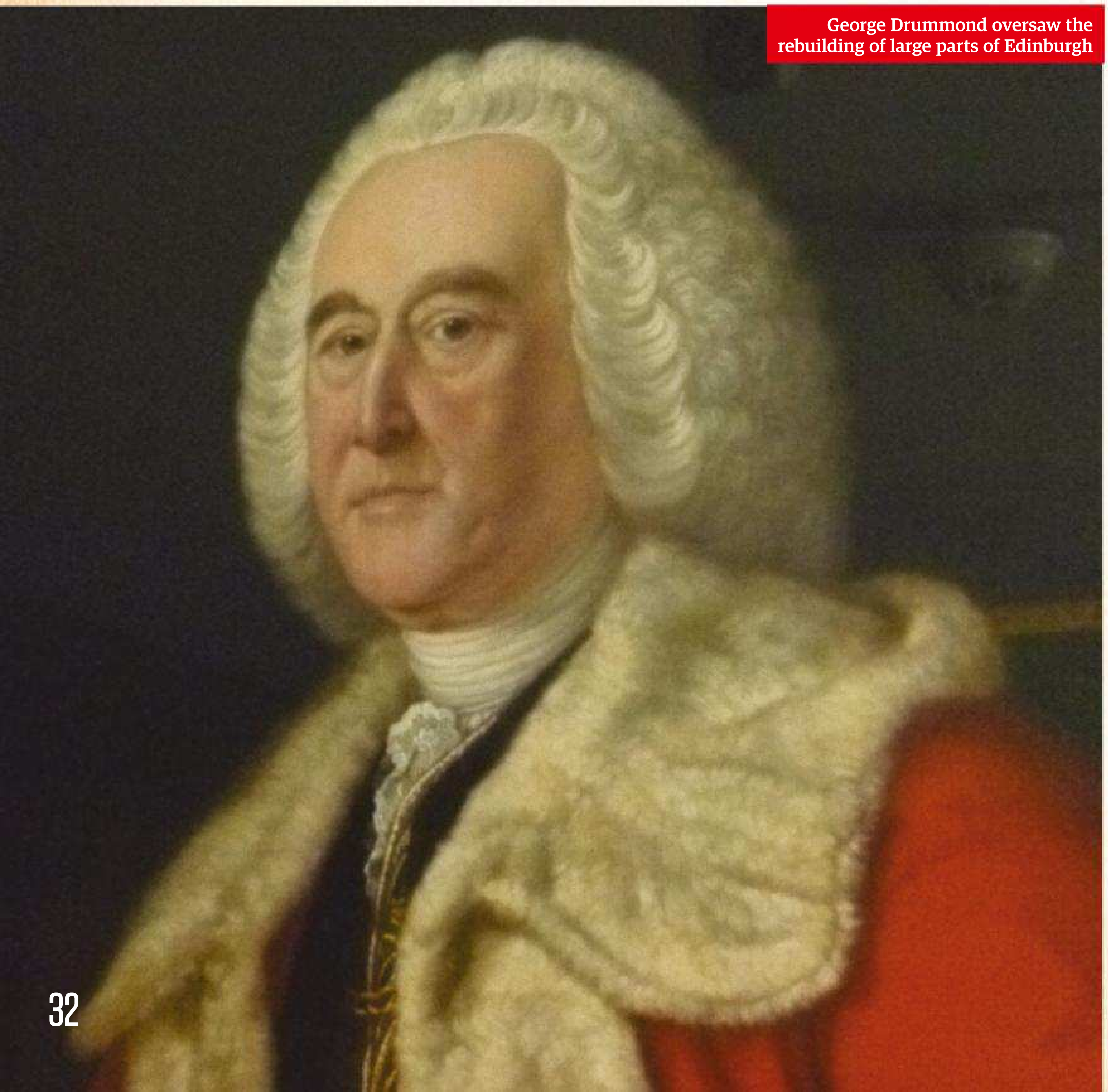
His interest in commerce and international business, stoked by the growth in overseas trade experienced by Scottish merchants, led him into the world of politics as well. He saw America as a useful source of income and argued that an end to the War of Independence there would bring economic benefits to Britain as a whole. He would go on to take part in peace negotiations himself, an indication of how influential he had become. William Pitt the Younger adopted his ideas, which laid the basis for free market economics.

Ground-breaking ideas were also being put forward by the leading scientific minds of the Scottish Enlightenment. Joseph Black, professor of anatomy and chemistry at the University of Glasgow during part of Smith's time there, became known for his pioneering work, which included the discovery of magnesium, specific heat and carbon dioxide. The University of Edinburgh Medical

Hume and Smith, the leading figures of the Scottish Enlightenment, are remembered at the Scottish National Portrait Gallery



James Macpherson's passion for vernacular poetry would have a major impact



George Drummond oversaw the rebuilding of large parts of Edinburgh

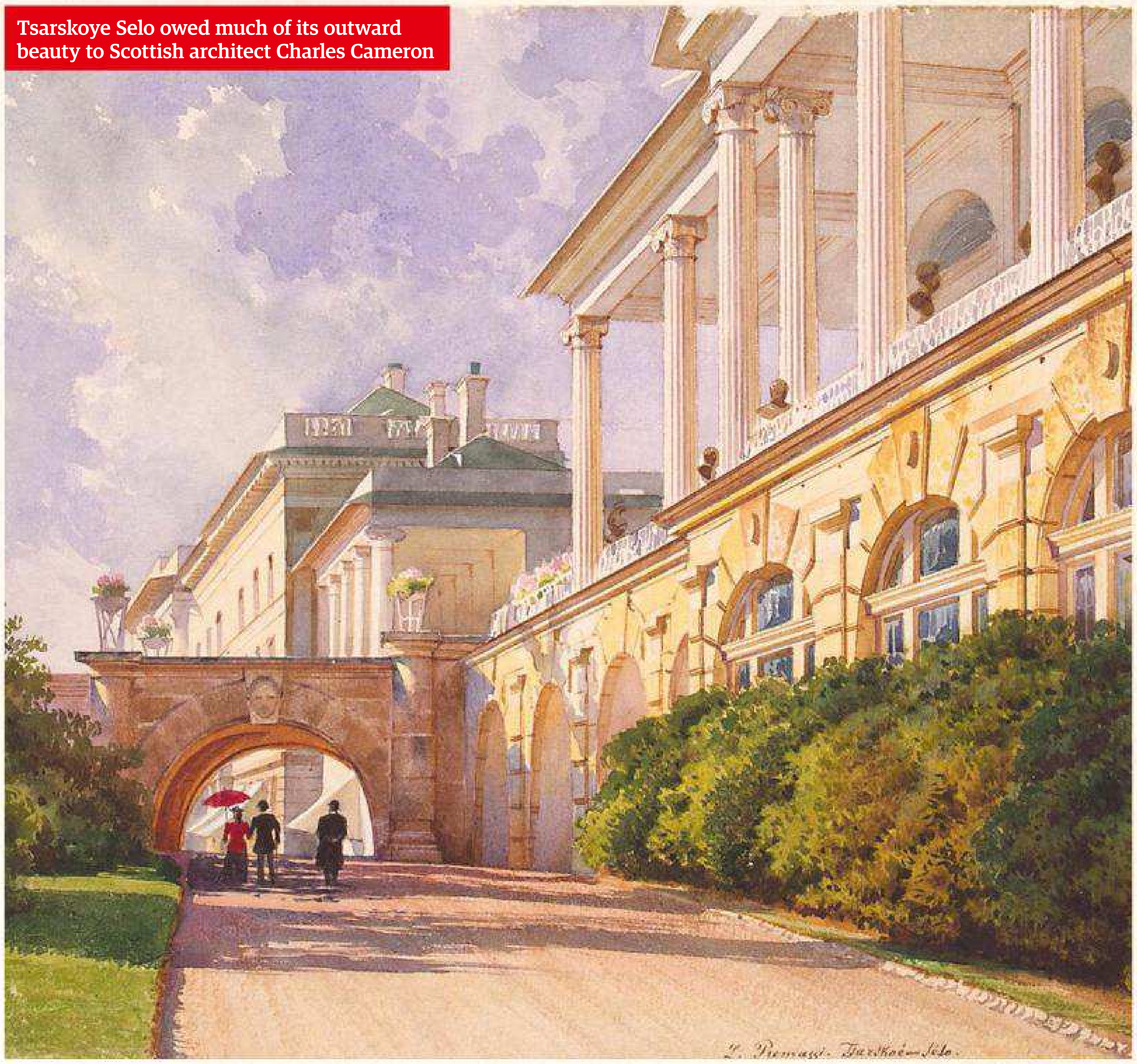
School was founded in 1726 by Alexander Monro and went on to become one of the leading teaching institutes in the world during the 18th century. Among those who taught there was the celebrated physician and researcher William Cullen, who counted Black among his friends.

The science of geology also came to prominence during the Scottish Enlightenment with James Hutton, often called its founding father, leading the way. For decades, it had been claimed that it was possible to trace the origins of the world through making calculations based on Biblical events. Hutton challenged this with his study of rock formations. His work at Siccar Point in Berwickshire led to the discovery of volcanic and sedimentary rock overlaying each other and caused him to propose that the world was so old, its beginnings could never be pinpointed. His influence was extended further when leading mathematician John Playfair expanded on his findings in a seminal book published in 1802.

Hutton said that science should be the basis of beliefs rather than the traditions which had been adhered to for centuries. However, not all Scottish Enlightenment thinkers were so ready to reject religion. Hugh Blair, a Church of Scotland minister, became one of the leading literary figures of the age. His most famous work, *Sermons*, underlined the importance of Christian morality in everyday life. But he also gave his support to more radical works, promoting in particular the Ossian cycle of James Macpherson who would go on to influence his fair share of Enlightenment greats including Johann Wolfgang von Goethe.

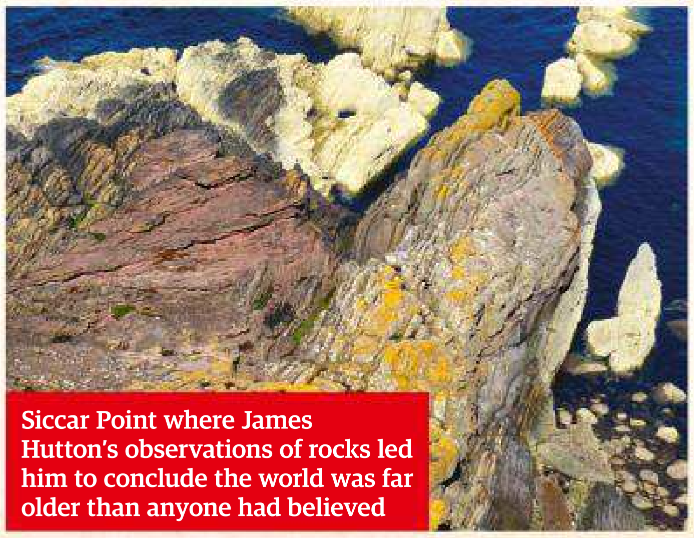
Other literary figures brought Scottish language and folk poems back into fashion. Robert Fergusson, who was educated at St Andrews and who arrived in Edinburgh at the height of the Scottish Enlightenment, published in both English and Scots Gaelic and would be a major influence on Robert Burns. The revival in vernacular literature had been started by Allan Ramsay, who - as well as writing plays and poetry - is credited with starting the first circulating library in Britain, another way to spread new ideas to as many people as possible - an aim of all Enlightenment thinkers. And those

> "The impact of the Scottish Enlightenment was among the most extensive of all the movements in Europe at the time"


Tsarskoye Selo owed much of its outward beauty to Scottish architect Charles Cameron

thoughts and philosophies were committed to paper by another leading Edinburgh writer. James Boswell, who was most famous for his travel writing and diaries, also became the biographer of leading Enlightenment figure Samuel Johnson, ensuring that his beliefs reached a wider audience than ever before.

It was also an indication of the way in which the Scottish Enlightenment stretched beyond its own borders and had an impact around the world. Several leading figures took their ideas abroad directly. Henry Farquharson's skills in mathematics were so admired by Peter the Great of Russia that he was invited to Moscow to introduce new ways of thinking to the country. Architect Charles Cameron was recruited by another Russian ruler, Catherine the Great, with the palace of Tsarskoye Selo among his greatest achievements.


Siccar Point where James Hutton's observations of rocks led him to conclude the world was far older than anyone had believed

Scottish Enlightenment ideas also went west. James Wilson, a Founding Father of the United States, was born near St Andrews in 1742. After studying at the universities of St Andrews, Glasgow and Edinburgh, where he was taught by Hume, Smith and Francis Hutcheson, he travelled to Philadelphia in 1765 filled with radical ideas. Another founding father, John Witherspoon, studied in Edinburgh where he opposed the views of Hutcheson before heading to America in 1766. The radical thoughts of Hume, Smith and others also influenced other Founding Fathers, including Thomas Paine. The Act of Union, which had taken so many nobles away, allowing the middle classes to flourish, had also opened up English trade routes to Scottish merchants and established new links. While the money that brought helped fund the education that was allowing ideas to flourish, the presence of the routes themselves created a new audience for the radical thinking that encompassed every part of Scottish life in the 18th century.

The impact of the Scottish Enlightenment was among the most extensive of all the movements in Europe at the time. It was an explosion of energy and dynamism that appeared to come from nowhere but which sustained itself in a calm and controlled manner and brought benefits at both home and abroad.

The birthplace of a new Britannica

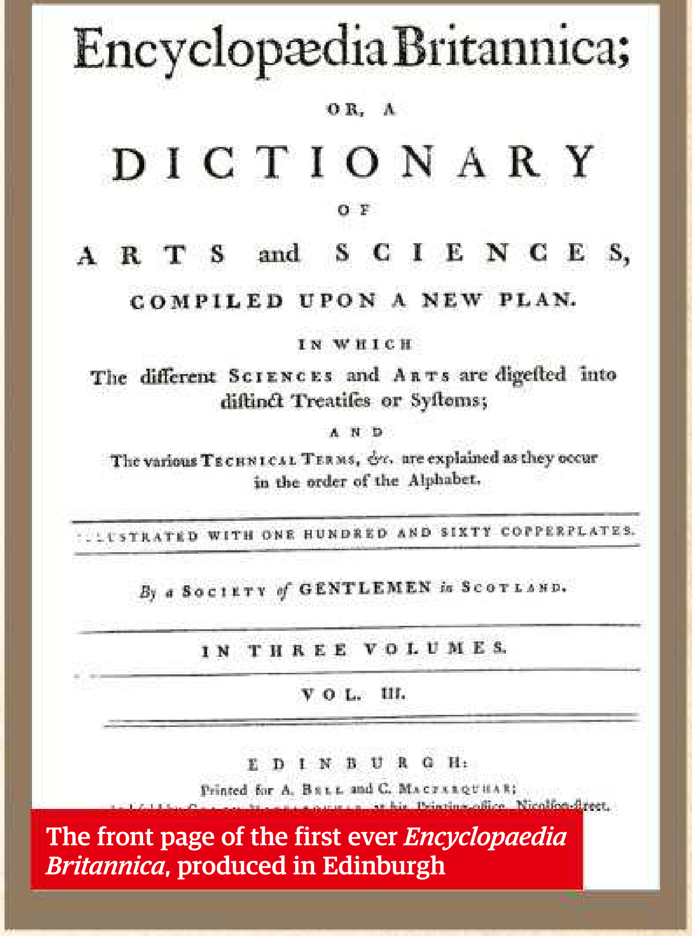
The desire to share knowledge led to one of the Scottish Enlightenment's most ambitious projects

It has been found in every library across the UK at some point and it first took shape in Edinburgh during the Scottish Enlightenment. The *Encyclopaedia Britannica*, which in its last print edition stretched to over 30,000 pages, was the product of the new way of thinking that took over Scotland in the 18th century.

It was inspired by the famous French *L'Encyclopedie*, edited by Denis Diderot and authored by Jean d'Alembert, which had begun in 1751. Between 1768 and 1771, the British version took shape under the stewardship of printers Colin Macfarquhar and Andrew Bell. Their editor, William Smellie, oversaw articles published over 100 weeks, which grew into a three-volume collection.

Also known as *A Dictionary of Arts and Sciences, Compiled Upon a New Plan*, it included articles on a wide range of subjects with Smellie stating the book needed to be useful as well as educational. It proved popular and was soon expanded. In 1777, a second edition, this time including articles on history and famous people, was published. As the Age of Enlightenment came to an end, a third version was underway – the edition produced between 1788 and 1797 would eventually run to 18 volumes.

The *Encyclopaedia Britannica* went on to become one of the most famous reference works in the world, fulfilling another Enlightenment aim, to share information with as many people as possible to allow them to make up their own minds.


Encyclopædia Britannica;
OR, A
DICTIONARY
OF
ARTS and SCIENCES,
COMPILED UPON A NEW PLAN.
IN WHICH
The different SCIENCES and ARTS are digeſted into
diſtinct Treatiſes or Syſtems;
AND
The various TECHNICAL TERMS, &c. are explained as they occur
in the order of the Alphabet.

ILLUSTRATED WITH ONE HUNDRED AND SIXTY COPPERPLATES.

By a SOCIETY of GENTLEMEN in SCOTLAND.

IN THREE VOLUMES.

VOL. III.

EDINBURGH:
Printed for A. BELL and C. MACFARQUHAR;
at his Printing-office, Nicolſon-ſtreet.

The front page of the first ever *Encyclopaedia Britannica*, produced in Edinburgh

The English Enlightenment

In the early Enlightenment, a philosophical conflict waged between Britain and the rest of Western Europe

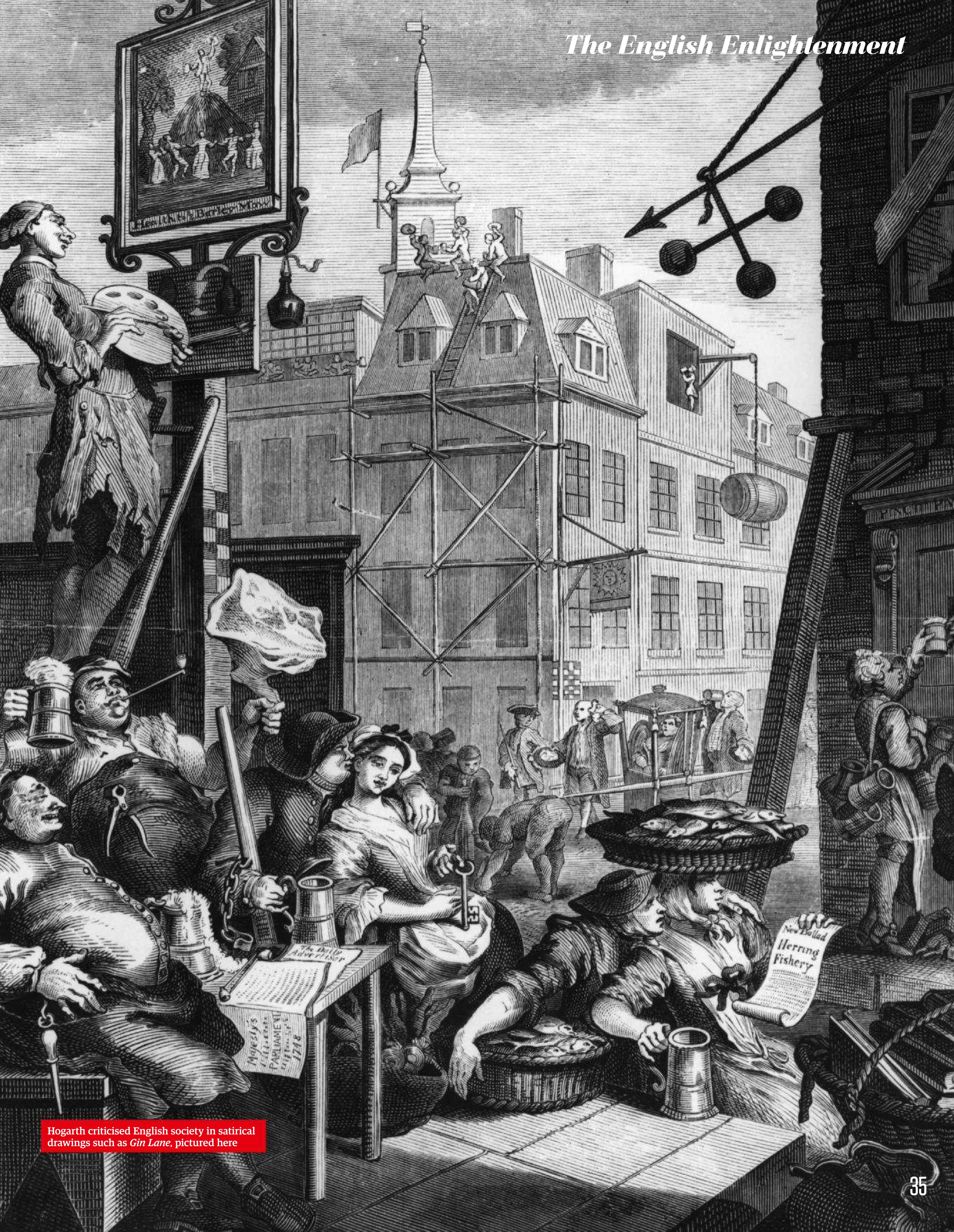
Words by Derek Wilson

The word 'Enlightenment' in the restricted sense that we are using it here appeared in English in the mid-19th century and it was certainly not used as a term of approbation. The Oxford English Dictionary defines it as describing "the spirit and aims of French philosophers of the 18th century or others associated with them in a charge of shallow and pretentious intellectualism and unreasonable contempt for tradition and authority". Modern thinkers who consider themselves as heirs of the Enlightenment might consider this to be a backhanded compliment, because they are guided only by reason and reject all religious, political and philosophical dogmas. That, however, is not how advanced intellectuals in England thought of themselves 300 years ago.

Many historians question the usefulness of the terms 'English Enlightenment'. This is not because the century or so following the Restoration of Charles II in 1660 did not produce several gifted and original thinkers who challenged earlier preconceptions. It certainly did. However, the result was not a recognisable philosophical 'school' on a par with the French Encylopédistes. The reactions of thinkers to political, ethical and religious problems were much more diverse and complex. Thus, for example, to claim that an 'age of faith' was superceded by an 'age of reason' is too simplistic to be of any value. It was John Wesley, the founder of Methodism, who insisted, "To renounce reason is to renounce religion… religion and reason go hand in hand." He had in mind certain contemporary preachers who relied for their effectiveness on emotional oratory, something he rejected as firmly as he opposed the moral decadence of the age, atheism and the half-way house of deism.

In order to get a handle on the major movements in English thought it is helpful to relate them to the main events of the time. The return of the Frenchified Charles II meant a reaction against strict and oppressive Puritanism and its replacement by a social milieu that was hedonistic (at least at the upper levels) but no less oppressive. The 'Cavalier Parliament' ousted almost 700 clergy from their livings and closed universities and important public office to all 'dissenters' - the Quaker Act of 1662 actually threatened members of the Society of Friends with deportation. Yet at the same time Charles II became the patron of the Royal Society of London for Improving Natural Knowledge. The disconnect between the

> "In order to get a handle on the major movements, in English thought it is helpful to relate them to main events"


The Daily Advertiser
New Ballad Herring Fishery
Majesty's
PARLIAMENT
1748

Hogarth criticised English society in satirical drawings such as *Gin Lane*, pictured here

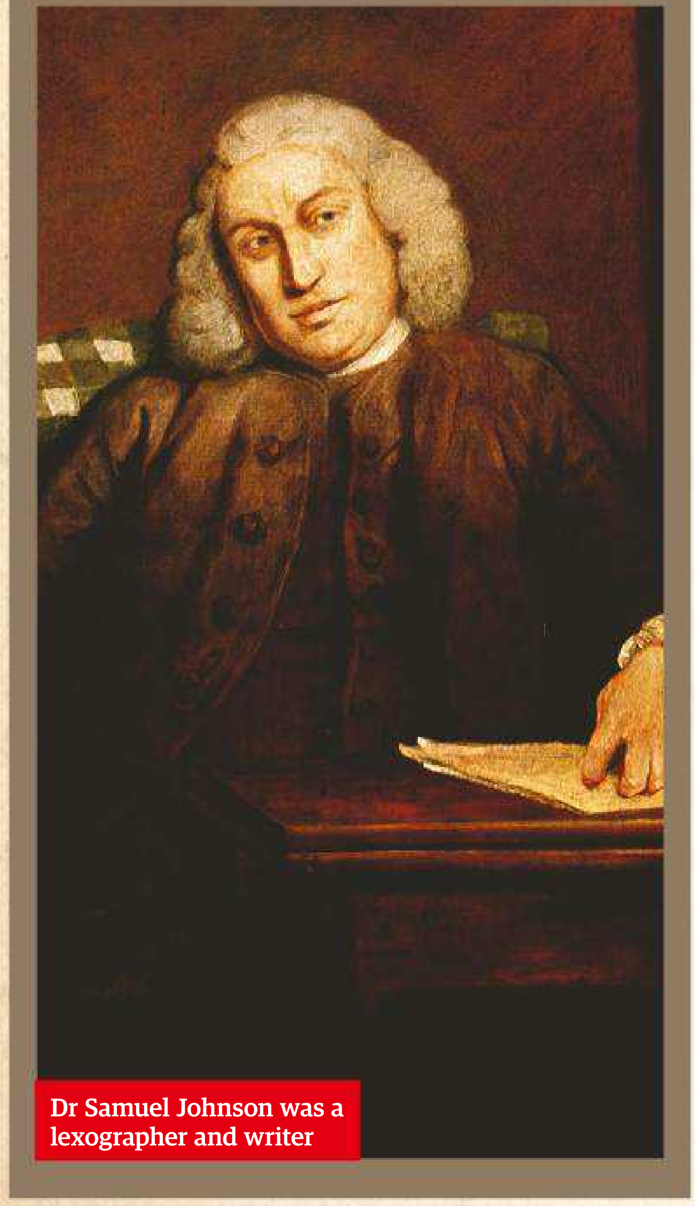
The people's philosopher?

Dr Johnson had a short way with esoteric philosophy. His biographer, James Boswell recorded the poet's reaction to the news of Hume's death in 1776

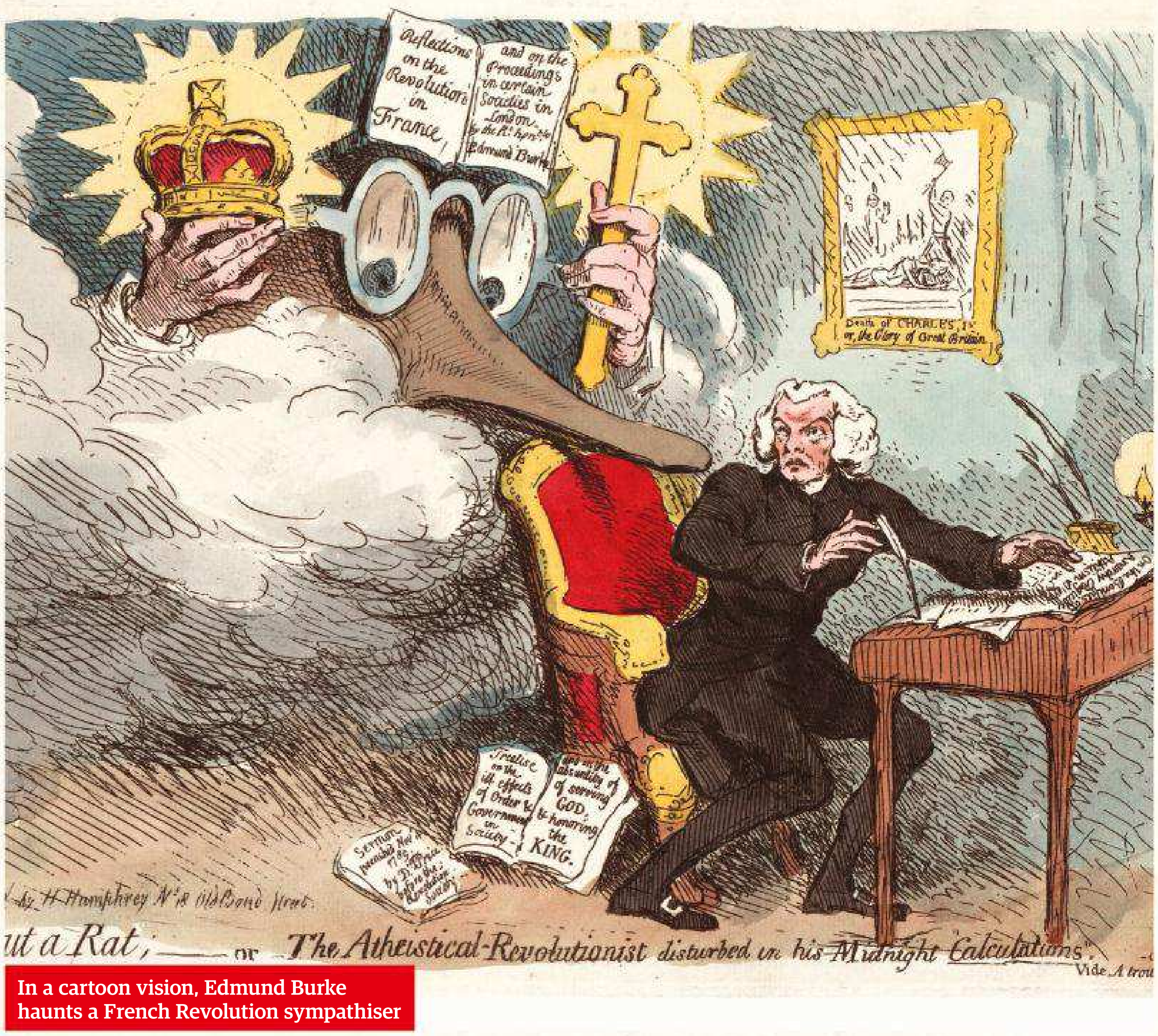
"I mentioned … that David Hume's persisting in his infidelity, when he was dying shocked me much. Johnson: 'Why should it shock you, Sir? Hume owned that he had never read the New Testament with attention. Here, then, was a man who had been at no pains to enquire into the truth of religion. It was not to be expected that the prospect of death would alter his way of thinking.'

Johnson had no truck with Berkeley's concept that matter only exists through our perception as Boswell commented: 'Though we are satisfied his doctrine is not true it is impossible to refute it …' Johnson answered striking his foot with mighty force against a large stone … 'I refute it thus.'

We can all too easily find ourselves sucked into the rarified atmosphere of esoteric speculation. Perhaps we need a Johnson to remind us of the real world where great thinkers spent most of their time. The Age of Reason was also the Age of Rural Depopulation. The Age of the First Industrial Conurbations, The Age of the Slave Trade, The Age of Imperial Expansion, The Age of the Lost American colonies, The Age of the Killing Fields of Austerlitz, Trafalgar and Waterloo."



Dr Samuel Johnson was a lexographer and writer


Reflections on the Revolution in France
and on the Proceedings in certain Societies in London by the Rt. honble Edmund Burke
Death of CHARLES Ist or, the Glory of Great Britain
Treatise on the ill effects of Order & Government in Society
on the absurdity of serving GOD, & honoring the KING.
Sermon preached Nov 4 1789 by Dr. Price before the Revolution Society
by H. Humphrey No 18 Old Bond Street.
ut a Rat; — or The Atheistical-Revolutionist disturbed in his Midnight Calculations.
Vide A trou

In a cartoon vision, Edmund Burke haunts a French Revolution sympathiser

encouragement of philosophical enquiry and the suppression of unorthodox religious beliefs and how this impacted on human society could not fail to engage the attention of the leading thinkers of the age. This meant not only that religion could not be ignored, but that it had to be placed at the centre of philosophical enquiry. According to John Redwood, when someone wrote about "the weather, the seasons, the structure of the earth, the constitution of the heavens, the nature of political society, the organisation of the Church, social morality or ethics he was by definition taking up his pen to write about God". The two great thinkers who signposted the path to be trodden by 18th-century English philosophers were John Locke and Isaac Newton.

John Locke's *An Essay Concerning Human Understanding* (1689) went through nine editions between 1727 and 1760. In it he posed the question 'How can we know anything'. That drove him back to an even more fundamental enquiry: 'Why do we want to know?' The answer was that man, unique in the animal creation, is made in the image of God. He has a soul. Like other creatures, he absorbs experience. Unlike other creatures, he is equipped with reason and so can reflect on experience. Within the purlieu of reason came the Bible.

To Locke it made perfect sense that the written revelation of God was available, like the divine handwork in nature, for man to experience and evaluate. It followed that everyone was free to read the Christian scriptures and form his or her own opinions. From this, Locke deduced that the Church could not dictate dogma and that Church and State should be separate. In 1688, this put him firmly on the side of the Glorious Revolution when parliament invited William of Orange to take the crown from James II, who had tried to impose Catholicism on his subjects.

Having witnessed divine right monarchy, republicanism and parliamentary rule sustained by religious factions, Locke, in his *Two Treatises of Government*, advanced a social contract not dissimilar to that later proposed by Rousseau. Power is bottom-up and not top-down. It resides in the people, and government, of whatever kind, is only morally justified as long as it protects the property and serves the wellbeing of the people.

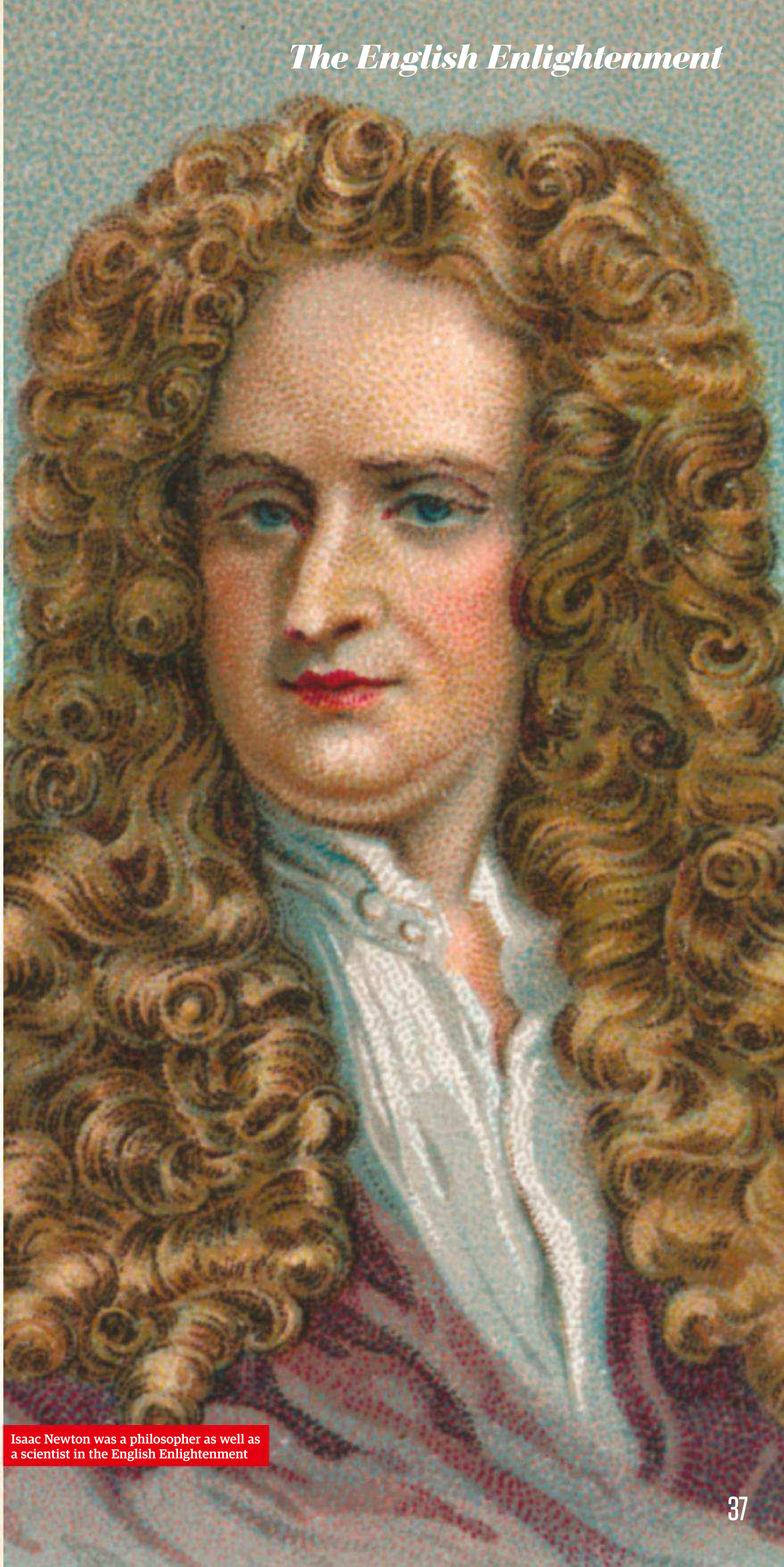
Sir Isaac Newton was, of course, an amazing polymath, on a par with Albert Einstein in the pantheon of science. His intellectual enquiries ranged over optics, astronomy, mathematics (he invented what was later called calculus), geometry, alchemy - and theology. He was a true son of the Enlightenment in that he did not close his mind to anything. He carried out alchemical experiments for years before concluding that it was a dead end. He was bitterly opposed to closed minds, rejecting equally both Catholic dogma and atheism. He was drawn into politics in the 1680s when Louis XIV and James II began to persecute Protestants.

Locke reckoned that Newton's knowledge of the Bible was almost unequalled. He rejected the doctrine of the Trinity. He subjected to close scrutiny the biblical prophecies of the Second Coming of Christ and concluded that this would not occur "before 2060". In his *Philosophiae Naturalis Principia Mathematica*, he drew on the Bible and Nature to propound his theory of a Creator at work in his creation, as opposed to deists who believed in a 'watchmaker god' who had set the universe in motion from the start, then left it to its own devices. He set forth the important 'proof' of the continuing diversity of nature. If God was an absentee creator, the universe would be incapable of inventing new things, whereas our senses reveal to us a cosmos in a state of continuous change: "That diversity of natural things which we find suited to different times and places could arise from nothing but the ideas and will of a Being necessarily existing."

One of the staunchest admirers of Newton was John Wesley. He inherited his independent spirit from his grandfather, Reverend John Wesley, who was one of the nonconforming clergy sacked by the Cavalier Parliament, and his enquiring mind from his father, Reverend Samuel Wesley. Samuel was a Lincolnshire parish priest and a member of the Society of Gentlemen for the Supporting of Mutual Benevolence and their Improvement in the Liberal Sciences and in Polite Learning. This was one of several regional debating clubs in the mould of the Royal Society which welcomed as visiting speakers some of the most prominent scientists, philosophers and artists of the day.

John's spiritual pilgrimage was a quest for a religion of head and heart. The faith he sought - and eventually found - relied not on dogma or emotionalism, but on experience. Like Locke, he believed that truth was self-evident because it 'worked'. He applied the same principle to the new medical treatment of electrotherapy. Having encountered the use of shock therapy for physical and mental conditions, he made a careful study and became convinced of the efficacy of this popular but controversial treatment, publishing his findings in *Primitive Physick: or an Easy and Natural Method of Curing Most Diseases*. He acquired his own machine and used it in the treatment of hundreds of people - mostly those who could not afford to pay doctors' fees. Wesley's extensive preaching tours are well known but he was almost as concerned for the physical health of his hearers as he was for their spiritual wellbeing.

Among England's philosophers there were no out-and-out atheists. David Hume, in Scotland, and Hermann Reimarus on the continent undoubtedly had their supporters among thinking Englishmen when they asserted that there was no rational foundation for belief in God but no writers of note were dismissive of the Christian faith. Edward Gibbon came closest to it in his monumental *History of the Decline and Fall of the Roman Empire*,



Isaac Newton was a philosopher as well as a scientist in the English Enlightenment

published in six volumes between 1776 and 1788. It was his thesis that the Church supplanted "in an unnecessarily destructive way the great culture that preceded it". Yet, his denigration of the "debased" Christian heritage did not lead on to a rejection of the Christian faith. Gibbon's anger with the state of the Church was shared by many contemporaries.

William Hogarth expressed his contempt for the state of society as a whole in satirical cartoons such as *Gin Lane* (exposing the effect of cheap alcohol), *The Humours of an Election* (political corruption) and *The Rake's Progress* (hedonism). But no critics were more vociferous than Wesley and other leaders of the Evangelical Revival that swept England and America for more than half a century starting in the 1730s.

Preachers like Wesley and George Whitefield inveighed against incompetent and ineffective clergy as well as the moral decadence of the nation, political corruption and the deism in which some philosophers took refuge. They were 'practical Christians' who believed that the best way to change society was to change individuals. While leading campaigns against the slave trade and in favour of prison reform and poor relief, they applied most of their efforts to "winning souls for Christ". Most historians would agree that revivalism did more to reshape the character of the nation than was achieved by political and intellectual leaders.

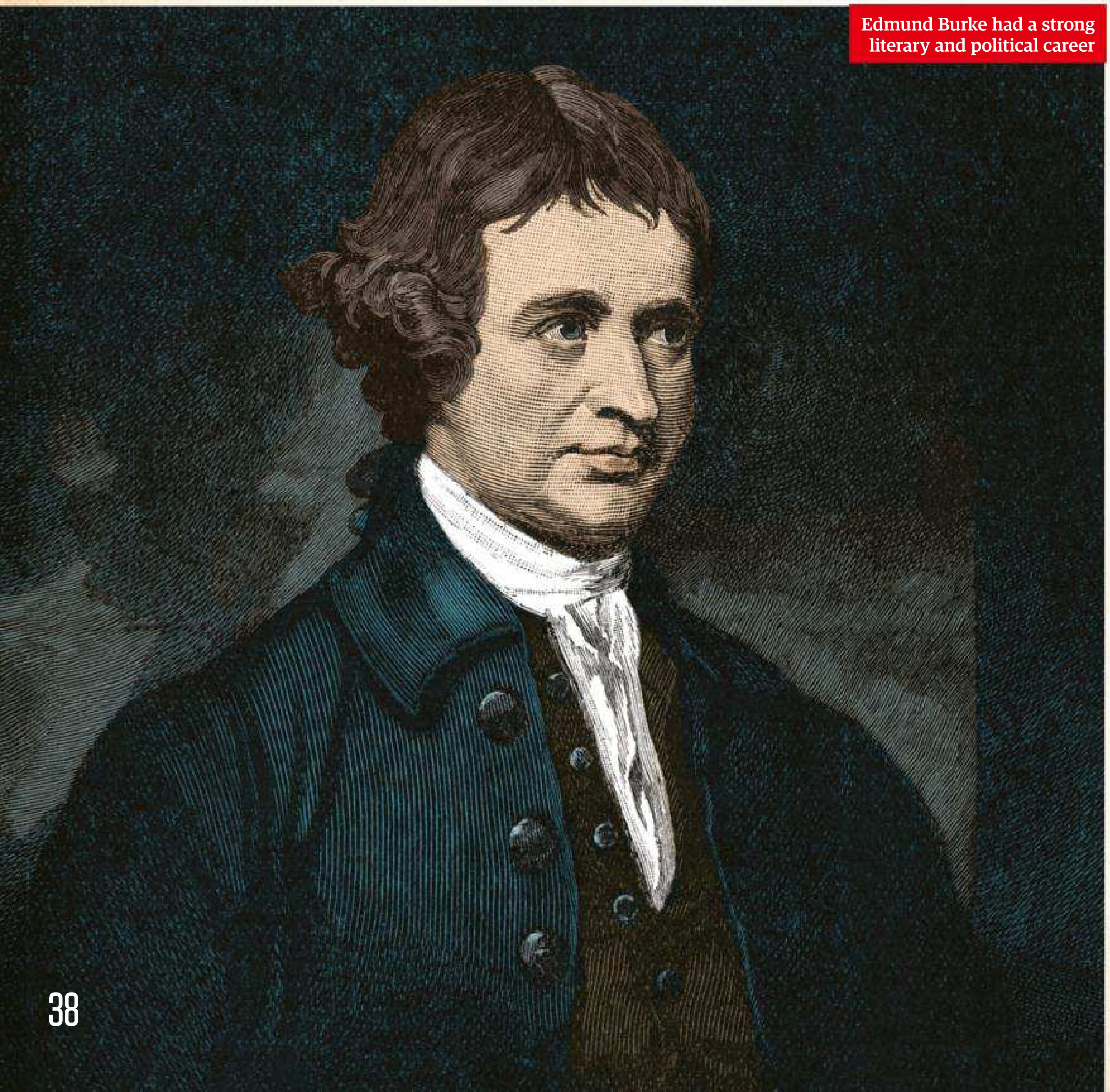
Yet practicality, pragmatism and a 'common sense' mistrust of esoteric speculation were characteristic qualities of most English philosophers of the era. On the continent and especially in France, the radicalism of Rousseau was one of the main intellectual tributaries of political revolution. Living under Church-State regimes in which secular and religious hierarchies clung together to sustain their power, advanced thinkers regarded not only the political edifice, but the intellectual foundation on which it rested as unstable. If a fresh structure dedicated to rationalism and the rights of man was to be erected, the site would have to be totally cleared first. In England, idealists looked on and applauded as French revolutionaries tore down the Ancien Régime. William Wordsworth later recalled the euphoria of those days:

Bliss was it in that dawn to be alive
But to be young was very heaven – Oh! Times,
In which the meagre, stale forbidding ways
Of custom, law and statute, took at once
The attraction of a country in romance!
Where Reason seemed the most to assert her rights
When most intent in making of herself,
A prime Enchantress...

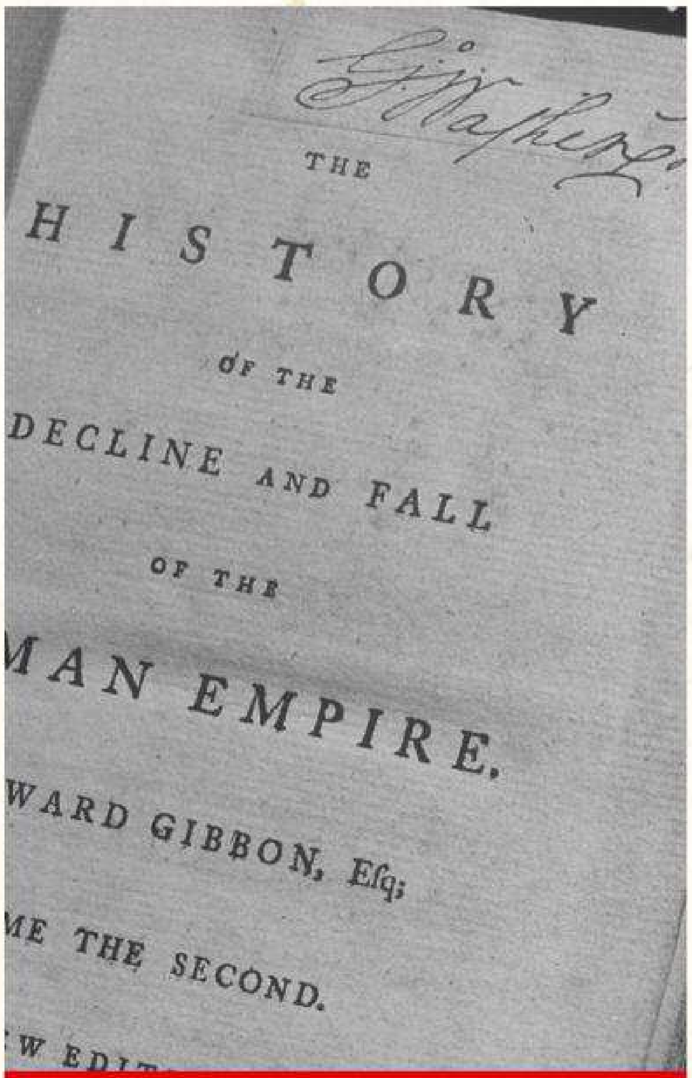
Only after the bloody outcome of the French Revolution did the poet drastically revise his opinion. The English spokesman who foresaw where France's Gadarene rush was heading and who issued a strong warning was the political philosopher and parliamentarian Edmund Burke. In *Reflections on the Revolution in France*, he contrasted violent action boosted by theoretical concepts of liberty with the serious business of remodelling constitutions and making them work. Burke argued that ever since the Magna Carta, England's political system had been hammered out by a process of debate, compromise and, occasionally, conflict based on hallowed laws and traditions. He called France's revolutionaries "men of theory", devoid of "any practical experience in the state". They:

Despise experience as the wisdom of unlettered men; they have wrought underground a mine that will blow up, at one grand explosion, all examples of antiquity, all precedents, charters, and Acts of Parliament. They have "the rights of men". Against these there can be no prescription; against these no argument is binding: these admit no temperament and no compromise: anything withheld from their full demand is so much of fraud and injustice. Against these their rights of men let no government look for security in the length of its continuance, or in the justice and lenity of its administration.

In the previous century, the English had executed one king and deposed another but they had preserved their ancient laws and legislative institutions. They still had a state church but were

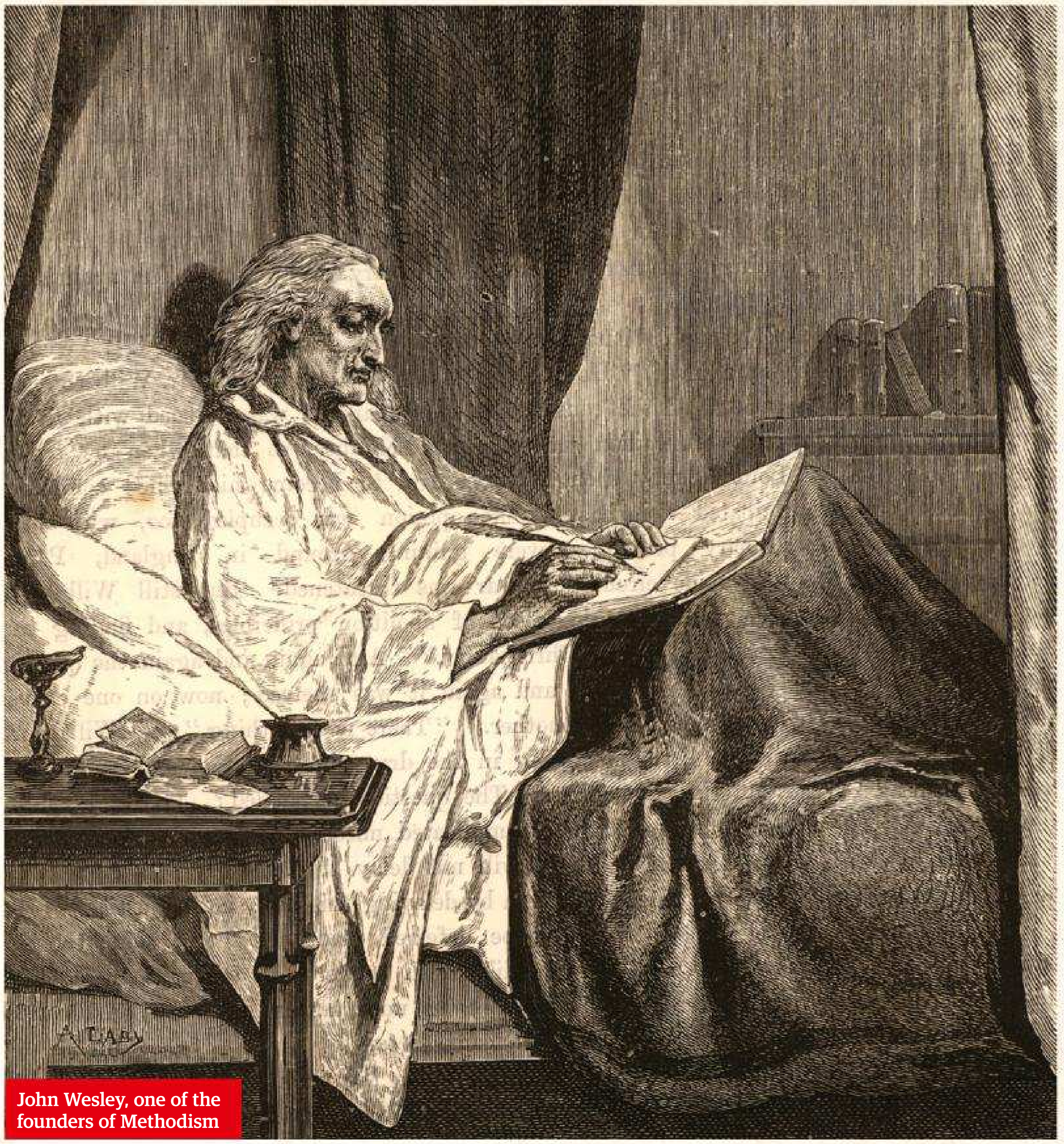


Edmund Burke had a strong literary and political career



THE
HISTORY
OF THE
DECLINE AND FALL
OF THE
MAN EMPIRE.
WARD GIBBON, Esq;
ME THE SECOND.

Edward Gibbon's most famous work was on the decline of the Roman Empire. This copy was owned and signed by American Founding Father George Washington


John Wesley, one of the founders of Methodism

feeling their way towards religious toleration. Edmund Burke thought of government as a science and, like all sciences, perfected by cautious and patient experiment, conducted by people endued with the appropriate knowledge and experience.

> *What is the use of discussing a man's abstract right to food or medicine? The question is on the method of procuring and administering them.*
>
> *In that deliberation I shall always advise to call in the aid of the farmer and the physician, rather than the professor of metaphysics.*

Not all English Enlightenment philosophers were absorbed in the practicalities of government or strayed away from the mainstream of empirical analysis. George Berkeley, for example, devoted much thought to defining matter and deducing the existence of God. The churchman, who rose to be bishop of Cloyne in Ireland, wanted to meet head-on the arguments of deists and atheists, one of whose key doctrines was that matter is eternal and so not dependent on God to sustain.

Berkeley based his counter-argument on the principle 'To be is either to be perceived or to perceive'. We know objects exist because we are aware of them. But does that mean that when we are not aware of them they cease to exist? "No," Berkeley replies, "because someone else is aware of them." There is only one being capable of being aware of all that is, and was and ever will be. Berkeley had produced another proof for the existence of God. A couple of centuries later, Berkeley's proof became the subject of a pair of limericks by the 20th-century writer and theologian Ronald Knox.

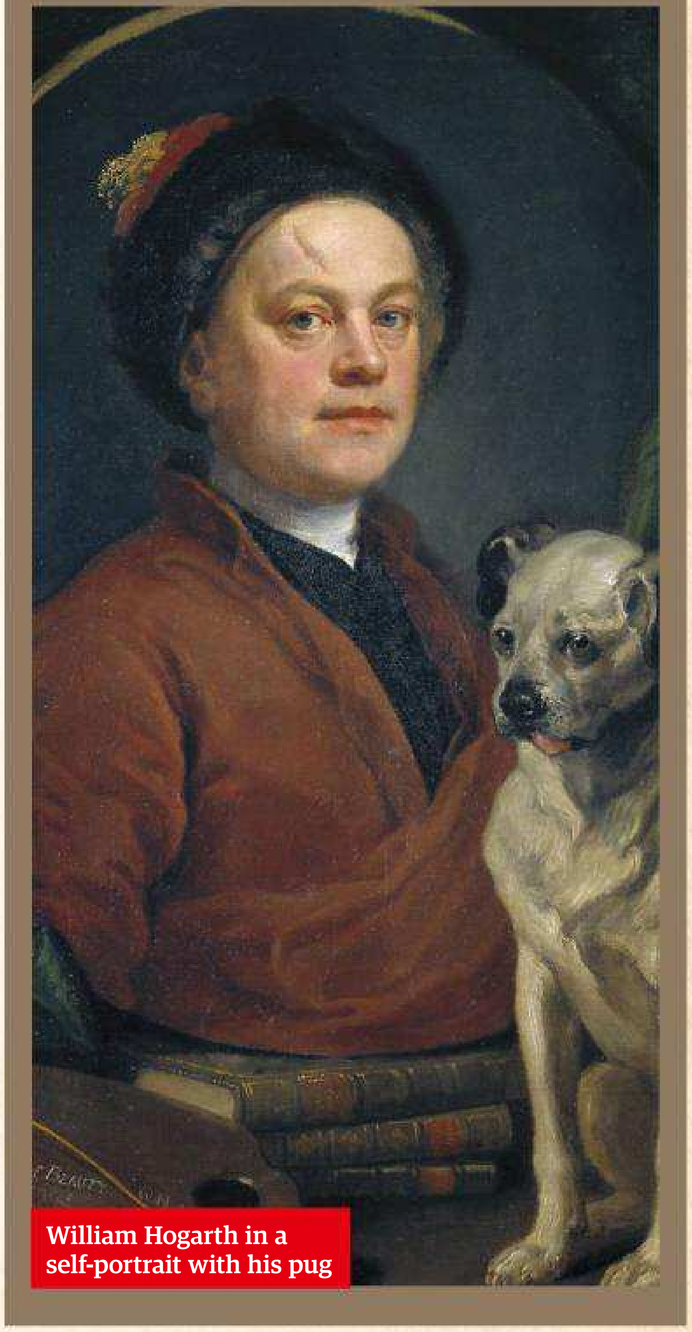
There was a young man who said, 'God
Must think it exceedingly odd
If he finds that this tree
Continues to be
When there's no-one about in the quad.'

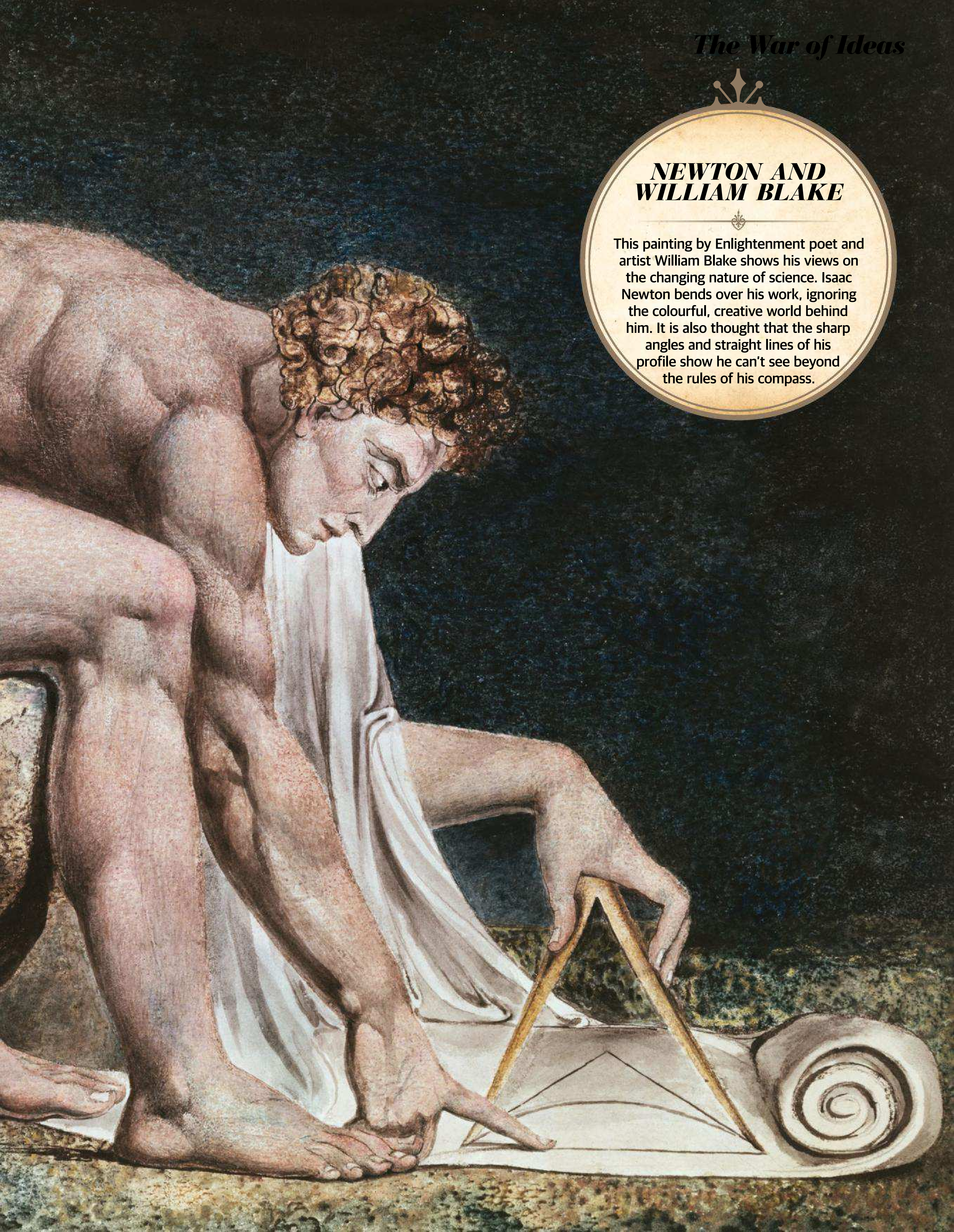
Dear Sir, Your astonishment's odd:
I am always about in the quad.
And that's why the tree
Will continue to be,
Since observed by,
Yours faithfully,
God.

Black humour

William Hogarth did what only satire can do and what satire can only do

18th-century England was a nation with many problems. Philosophers, preachers and political activists proposed their varied ways of understanding and dealing with those problems. Satirists could only draw attention to them as dramatically as possible. Hogarth's paintings and engravings savagely exposed anything and everything that was amiss in contemporary society. He mercilessly lampooned even the reformist men of reason and men of faith who were as outraged as he was at poverty, corruption and moral depravity. Towards the end of his life, he made two versions of an engraving called *Credulity, Superstition and Fanaticism*. It depicted a church interior in which evangelical preacher George Whitefield addressed a congregation displaying various states of religious ecstasy and moral delinquency. But the cartoon tilted at other targets – Catholic priests, occultists, hypocritical moralisers. Over all there hung a lamp painted to resemble a face showing leering despair. This was not a rationalist's response to a broken world. It was a frightening message of despair exposing materialism but also the enemies of materialism. In so doing it became part of the problem.


William Hogarth in a self-portrait with his pug



NEWTON AND WILLIAM BLAKE

This painting by Enlightenment poet and artist William Blake shows his views on the changing nature of science. Isaac Newton bends over his work, ignoring the colourful, creative world behind him. It is also thought that the sharp angles and straight lines of his profile show he can't see beyond the rules of his compass.

Mary Wollstonecraft

Considered by some as a founding feminist philosopher, her accomplishments have been overshadowed by a life of scandal and tragedy

Words by Alicea Francis

Let my wrongs sleep with me! Soon, very soon, shall I be at peace. When you receive this, my burning head will be cold … I shall plunge into the Thames where there is the least chance of my being snatched from the death I seek…”

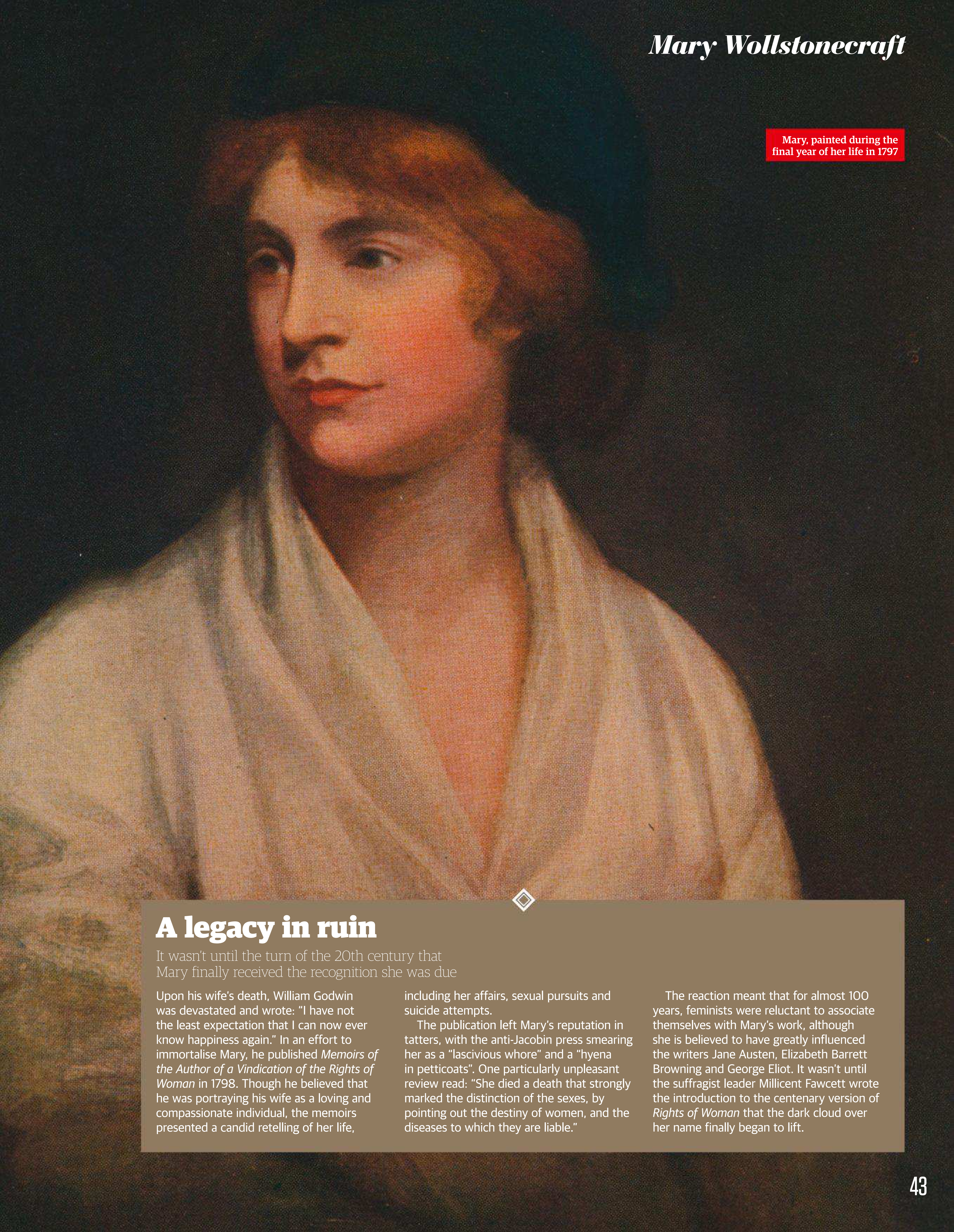
These words, written by Mary Wollstonecraft one rainy night in 1795, were intended to be her last. It was her second suicide attempt in the space of a few months, her first having failed after the ‘lethal’ dose of opium she had taken proved too little to suffice. This time, she spent half an hour walking up and down the river, waiting for her skirts to become heavy with rainwater before throwing herself into the Thames. But once again, death evaded her. Two passing watermen pulled her from the river and she would later write that she was “inhumanly brought back to life and misery”. What misery had been so deep as to cause this much-celebrated author to take such desperate measures?

Misery had haunted Mary since childhood. She was born in Spitalfields, London, on 27 April 1759 to parents Edward and Elizabeth. Her paternal grandfather had run a successful silk weaving business and she was thus born into relative prosperity. But Edward did not inherit his father’s business acumen. Instead, he attempted a career as a gentleman farmer, but his endeavours proved unsuccessful and he squandered away the family’s fortune. To make matters worse, Edward was a violent drunk, and Mary often slept on the floor outside her parents’ bedroom to stave off his midnight rages.

Mary’s education was humble and she received just a few years of schooling. Her elder brother, however, received a gentleman’s education to prepare him for the bar, which seemed to Mary a huge injustice: “Such indeed is the force of prejudice, that what was called spirit and wit in him, was cruelly repressed as forwardness in me.” It was in part these early experiences of patriarchy that would inspire the feminist philosophies for which she would become famous.

Mary sought comfort in her female friends, her closest being Fanny Blood. After spending some time as a lady’s companion, a position she detested, Mary and Fanny set up a girls’ school in Newington Green in 1784. Mary was passionate about the education of women, believing that it was the lack of schooling that made women appear intellectually inferior to men. She hated that a girls’ upbringing revolved around making them desirable to the other sex, and that beauty was considered the upmost virtue: “Taught from their infancy that beauty is woman’s sceptre, the mind shapes itself to the body and, roaming round its gilt cage, only seeks to adorn its prison.” She expressed her views in her very first literary endeavour, *Thoughts on the Education of Daughters*.

In 1785, Fanny married, and she and her husband moved to Lisbon in an attempt to improve her long-term ill health. When her condition worsened, Mary became her nurse, but she died in 1786. Mary was devastated. With the school project abandoned, she instead devoted all of her efforts to becoming an



Mary, painted during the final year of her life in 1797

A legacy in ruin

It wasn't until the turn of the 20th century that Mary finally received the recognition she was due

Upon his wife's death, William Godwin was devastated and wrote: "I have not the least expectation that I can now ever know happiness again." In an effort to immortalise Mary, he published *Memoirs of the Author of a Vindication of the Rights of Woman* in 1798. Though he believed that he was portraying his wife as a loving and compassionate individual, the memoirs presented a candid retelling of her life, including her affairs, sexual pursuits and suicide attempts.

The publication left Mary's reputation in tatters, with the anti-Jacobin press smearing her as a "lascivious whore" and a "hyena in petticoats". One particularly unpleasant review read: "She died a death that strongly marked the distinction of the sexes, by pointing out the destiny of women, and the diseases to which they are liable."

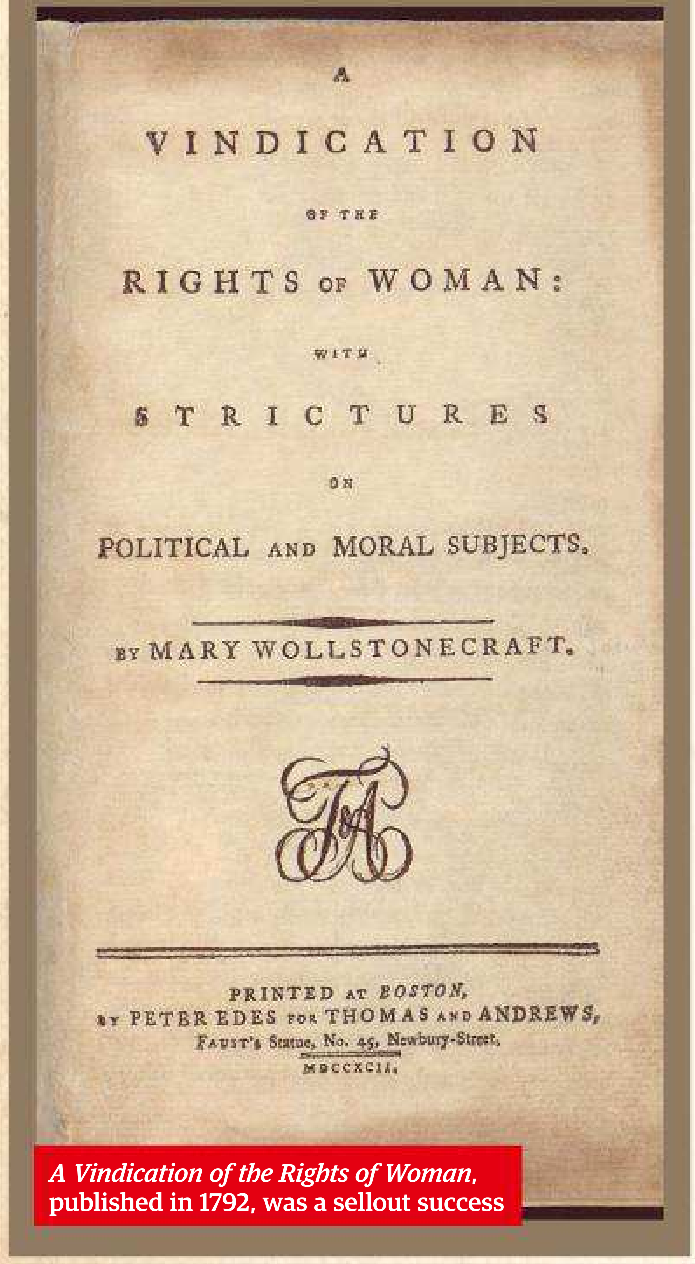
The reaction meant that for almost 100 years, feminists were reluctant to associate themselves with Mary's work, although she is believed to have greatly influenced the writers Jane Austen, Elizabeth Barrett Browning and George Eliot. It wasn't until the suffragist leader Millicent Fawcett wrote the introduction to the centenary version of *Rights of Woman* that the dark cloud over her name finally began to lift.

Mary and feminism

Her ambiguous statements on the (in)equality of men and women have made it hard to classify Mary as a truly modern feminist

Arguably Mary's greatest work was *A Vindication of the Rights of Woman*, considered one of the earliest published examples of feminist philosophy. In it, Mary argued that women are entitled to the same fundamental rights as men, claiming that they are essential to the nation because they educate its children. While she admitted that many women of her time came across as silly and superficial, she argued that this is not because of an innate intellectual inferiority but rather due to them being denied a proper education.

However, she never said that men and women are equal: "Let it not be concluded that I wish to invert the order of things; I have already granted, that, from the constitution of their bodies, men seem to be designed by Providence to attain a greater degree of virtue. I speak collectively of the whole sex; but I see not the shadow of a reason to conclude that their virtues should differ in respect to their nature. In fact, how can they, if virtue has only one eternal standard? I must therefore, if I reason consequently, as strenuously maintain that they have the same simple direction, as that there is a God."



A
VINDICATION
OF THE
RIGHTS OF WOMAN:
WITH
STRICTURES
ON
POLITICAL AND MORAL SUBJECTS.

BY MARY WOLLSTONECRAFT.

PRINTED AT BOSTON,
BY PETER EDES FOR THOMAS AND ANDREWS,
Faust's Statue, No. 45, Newbury-Street.
MDCCXCII.

A Vindication of the Rights of Woman, published in 1792, was a sellout success

William Godwin, who Mary married in 1797, was the foremost radical philosopher of his day

author, and her first novel - *Mary: A Fiction* - was deeply inspired by their friendship.

Upon her return to London, Mary was introduced to the liberal publisher Joseph Johnson, who agreed to publish *Thoughts*. It earned her £10, of which Mary was exceptionally proud. Besides her own projects, she assisted Johnson as an editorial assistant, reviewing books and translating them from French and German, languages which she had taught herself to speak. In 1788, they published *Mary: A Fiction* along with her first children's book, *Original Stories from Real Life*.

Meanwhile in Europe, huge changes were afoot. The 18th century was an age of reason and the rights of man, the consequences of which included the French Revolution, which began the following year. Mary deeply admired what was happening in France, describing it as a "glorious chance to obtain more virtue and happiness than hitherto blessed our globe". When, in 1790, Whig MP Edmund Burke published his scathing critique of the events, *Reflections on the Revolution in France*, Mary spent a month writing a rebuttal, which was published as *The Vindication of the Rights of Man*. The pamphlet saw huge success, which was followed by her 1792 work, *A Vindication of the Rights of Woman*, in which she argued that women deserve equal rights to men. It was in such high demand that one reader in Glasgow wrote: "[*A Vindication*] is so run after here that there is no keeping it long enough to read it leisurely."

In December 1792, Mary decided to travel to Paris to be a part of what she believed was a huge turning point in history. She was welcomed into the expatriate community there and became active within the moderate Girondin faction. She also sparked up a (sexual) relationship with an American adventurer, Gilbert Imlay. However, her excitement over the French Revolution was not to last. She wrote that the sight of the king being taken to his execution "made the tears flow insensibly from my eyes, when I saw Louis sitting with more dignity than I expected from his character, in a hackney coach going to meet death, where so many of his race have triumphed".

In February 1793, France declared war on Britain and foreigners were banned from leaving the country. Many of her Girondin friends met their fate at the guillotine, overseen by the radical Jacobin regime, and Mary - being both English and someone who had moved in Girondin circles - came under suspicion. In order to protect her, Gilbert falsely told the US embassy in Paris that they were married, automatically making her an American citizen, and the pair moved out of the city. Mary was dismayed to see that the people under the new republic were equally at the mercy of the powerful, and the Jacobins refused to grant women equal rights. "Death and misery, in every shape of terror, haunts this devoted country," she wrote in a letter to her sister.

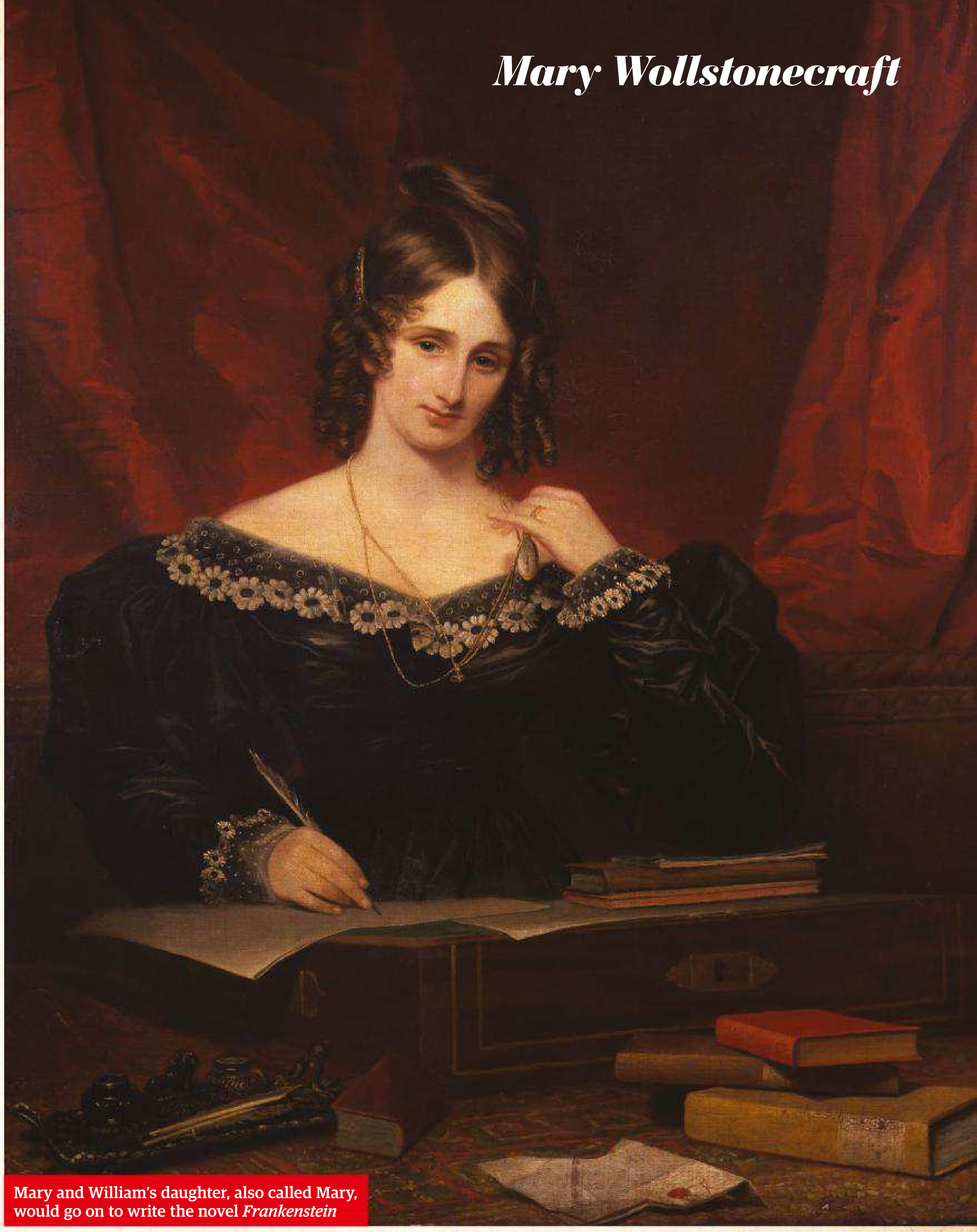
To make matters worse, by autumn Mary was pregnant, and Gilbert left the country on business matters. He promised to return but his long delays in writing to her convinced Mary that he had met another woman. Her daughter, Fanny - whom she named after her beloved friend - was born on 14 May 1794, and the abandoned mother and infant were reduced to desperate circumstances. When she heard that Gilbert was living in London in April the following year, Mary went after him.

Upon her arrival, she discovered that he had indeed met someone else. It was at this point that she first attempted suicide. Following the incident, Gilbert convinced her to travel to Scandinavia to conduct some business negotiations on his behalf, and desperate to win back his affections, she agreed. During her four months there, she wrote *Letters Written During a Short Residence in Sweden, Norway, and Denmark*, in which she recounted her travels, thoughts and sorrows. She returned to London only to discover that Gilbert had no intention of resuming their relationship, and in a moment of despair, attempted suicide once more.

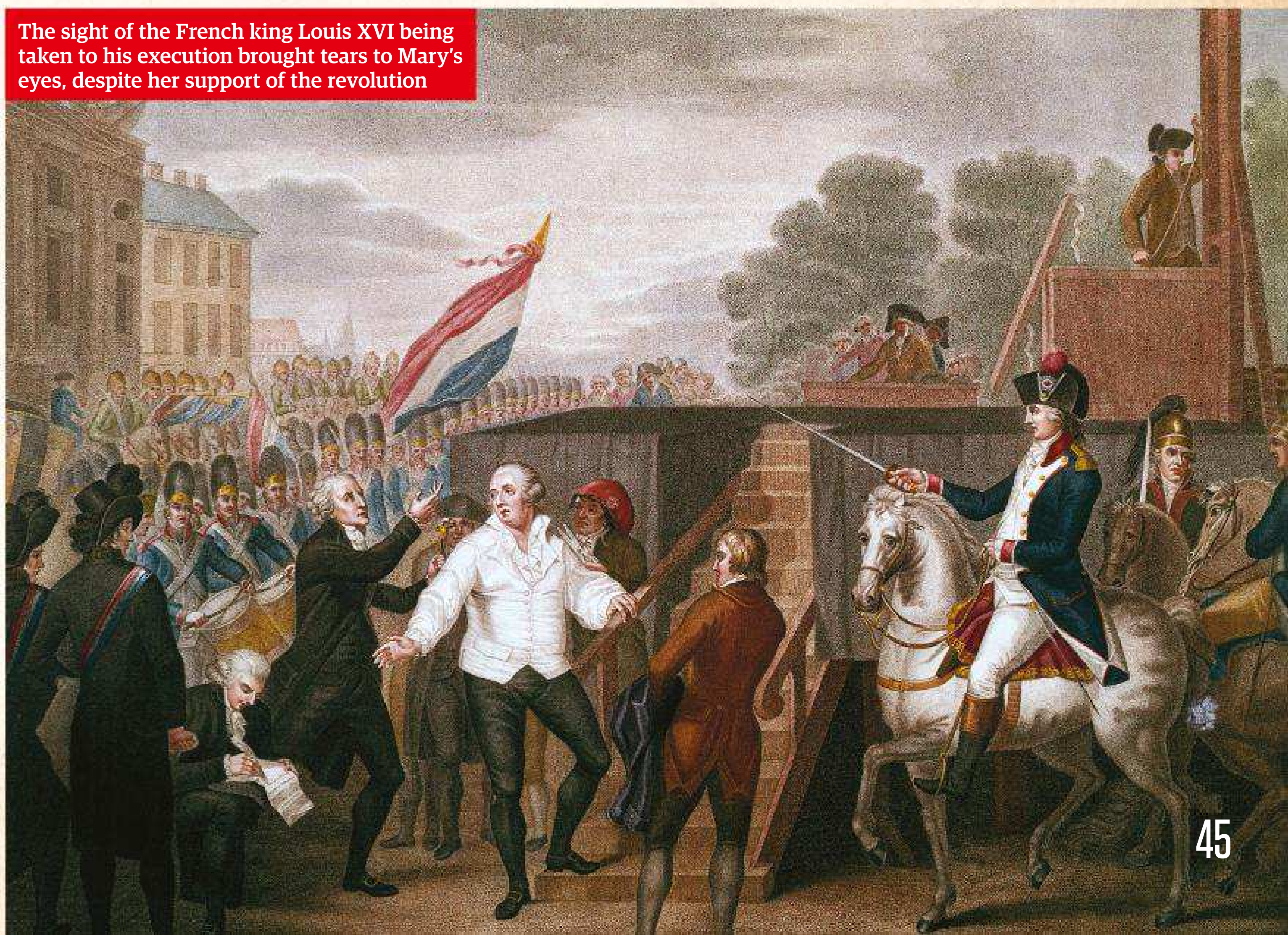
Mary finally accepted that her relationship with Gilbert was over. "I now solemnly assure you, that this is an eternal farewell," she wrote in her last letter to him, "I part with you in peace." However, she continued to introduce herself as 'Mrs Imlay'. She got back in touch with her old literary circle, and it was then that she was re-acquainted with the man who would soon become her husband by law. Mary had met William Godwin - the foremost radical philosopher of his day - at one of her publisher's dinner parties several years previously. Though the pair had initially not got along, upon reading Mary's *Letters*, William was smitten: "If ever there was a book calculated to make a man in love with its author, this appears to me to be the book. She speaks of her sorrows, in a way that fills us with melancholy, and dissolves us in tenderness, at the same time that she displays a genius which commands all our admiration." William and Mary began courting, and once again, Mary fell pregnant.

On 29 March 1797, they were married. The event caused a scandal, as it revealed the fact that Mary had never actually been married to Gilbert and that Fanny had been born out of wedlock. Despite this, the months that followed were happy ones, with one friend describing them as "the most extraordinary married pair in existence". Mary doted on William, writing: "I am never so well pleased with myself as when I please you." After giving birth to their daughter on 30 August, Mary fell ill with childbed fever, and she died on 10 September 1797.

Mary believed she had so much more to give, but unbeknown to her, she had already passed on the most precious of gifts - her talent. Her little girl, who would come to be known as Mary Shelley and the author of *Frankenstein*, is now one of the most famous names in literature. Mary Wollstonecraft, however, remains a figure in relative obscurity.



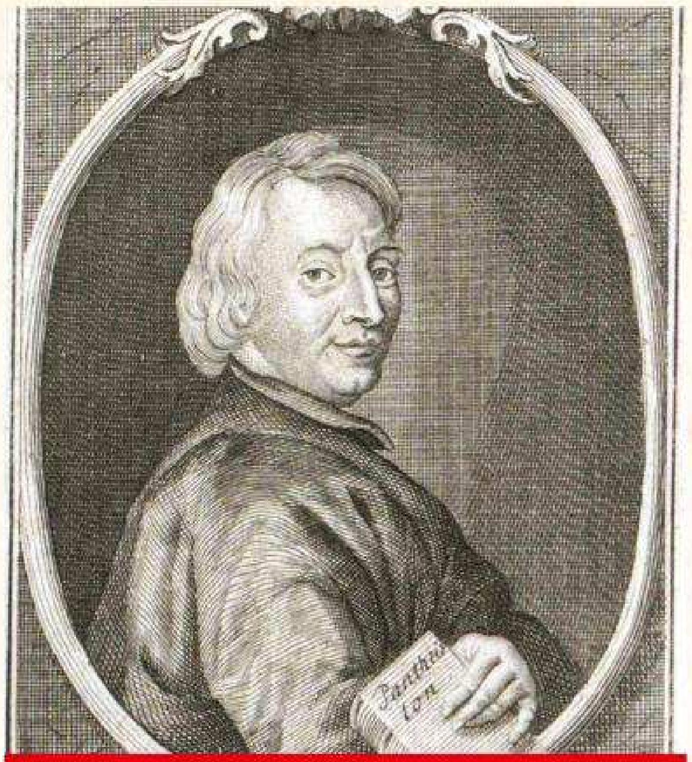
Mary and William's daughter, also called Mary, would go on to write the novel *Frankenstein*



The sight of the French king Louis XVI being taken to his execution brought tears to Mary's eyes, despite her support of the revolution

The Irish Enlightenment

The Irish enlightenment was an intensely political affair, very different from how it manifested itself on continental Europe



Toland's pantheistic work *Christianity not Mysterious* suggested God does not intervene in life on Earth

Ireland's history as a colony and the fact Enlightenment ideas in Ireland were largely not acknowledged by contemporaries - many of them still of the prejudicial view that Ireland's people were unruly and backwards - but they helped to shape the Enlightenment into a national debate about religion and review Ireland's place in the wider world.

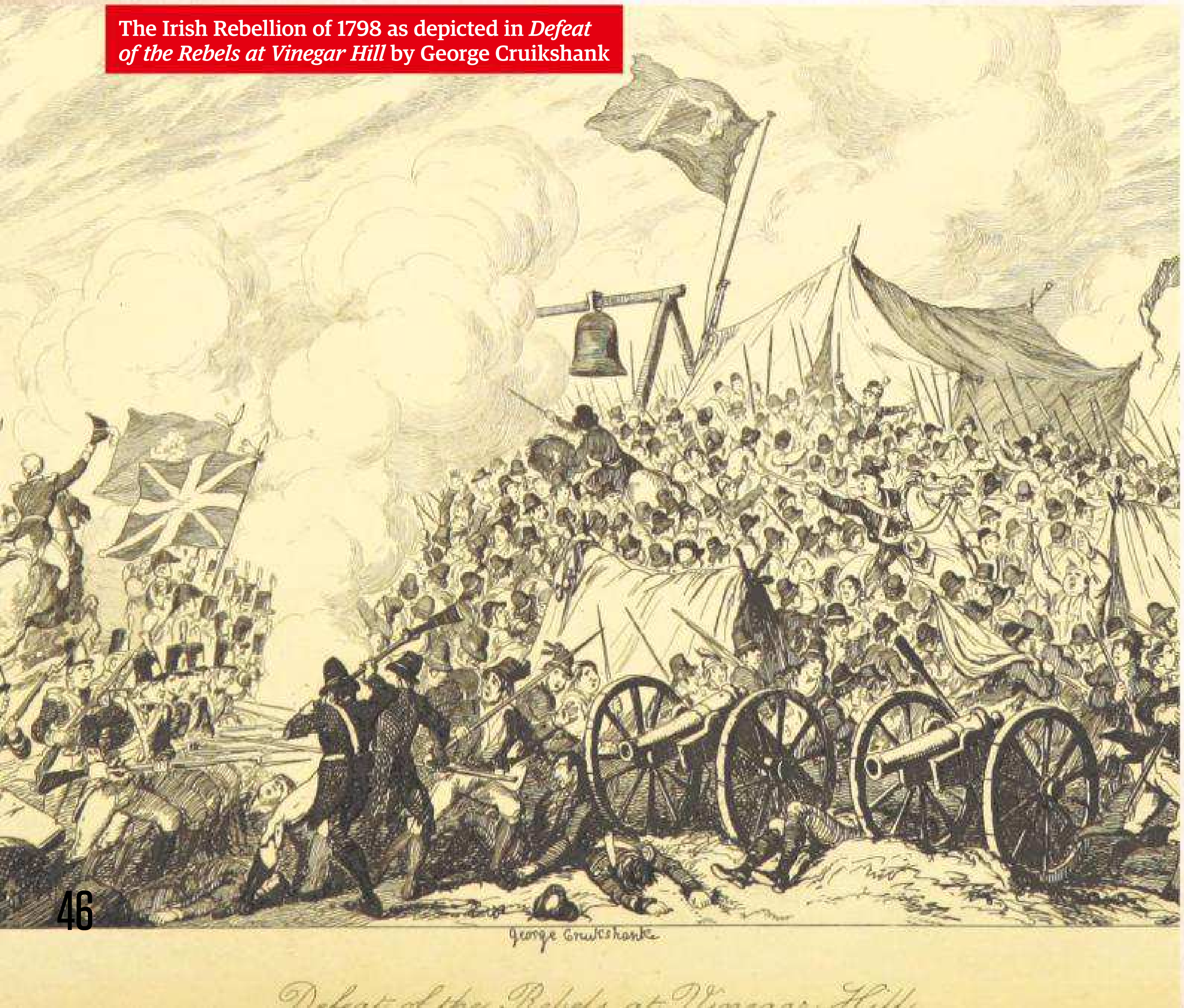
As the historian Michael Brown argues, "Ireland was never a central locus of the Enlightenment, but Enlightenment was central to solving the interweave of problems - sectarianism, economic underdevelopment and political dependency - that confronted the country through the [18th] century."

Those who argue that there was an Irish Enlightenment often suggest it begins in 1696 with the publication of John Toland's radical book *Christianity not Mysterious*, subtitled 'a treatise showing that there is nothing in the Gospel contrary to reason, nor above it: and that no Christian doctrine can be properly call'd a mystery'.

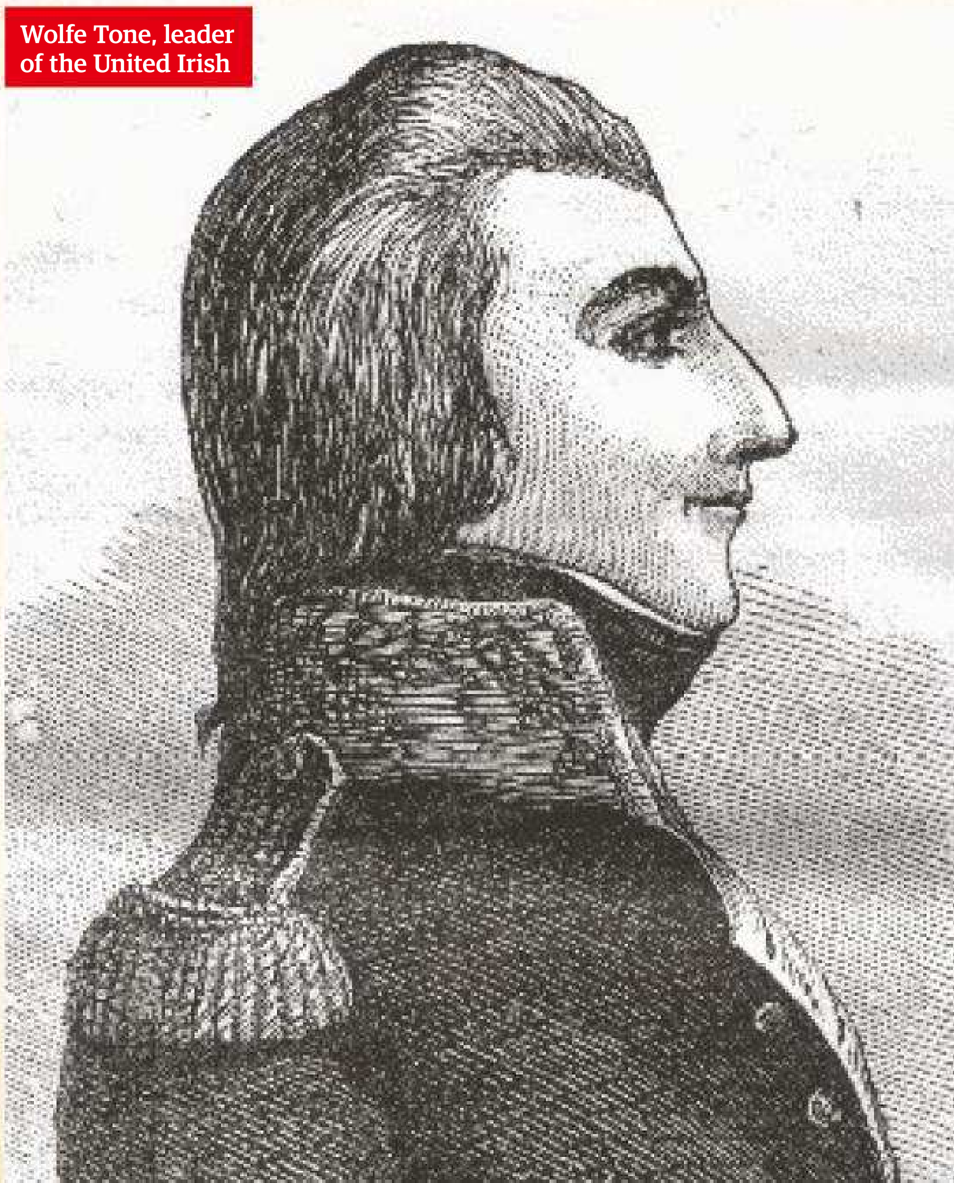
The line "there is nothing in the Gospel contrary to reason" was particularly inflammatory to many of the Irish clergy, and led to it being presented to a grand jury in Middlesex. An order was also put out from the Irish Commons for Toland to be arrested. Yet prescribing the book also meant it resonated across Ireland, because it suggested that God had no power to intervene in human thought: "all power of rationing began and ended with the human mind" meant that God created the world but does not intervene.

A cultured and travelled man with a Masters from the University of Edinburgh, Toland is believed to have converted to Protestantism at the age of 16. Although he spent a lot of time publicly trying to 'atone' for the sin of writing the book, including standing for parliament in London in 1702, Toland must clearly have been frustrated that the same intolerance that was said by Protestants to indoctrinate the Catholic faith and contribute to Ireland's perceived backwardness appeared no different to the attitude of the Protestant ruling class.

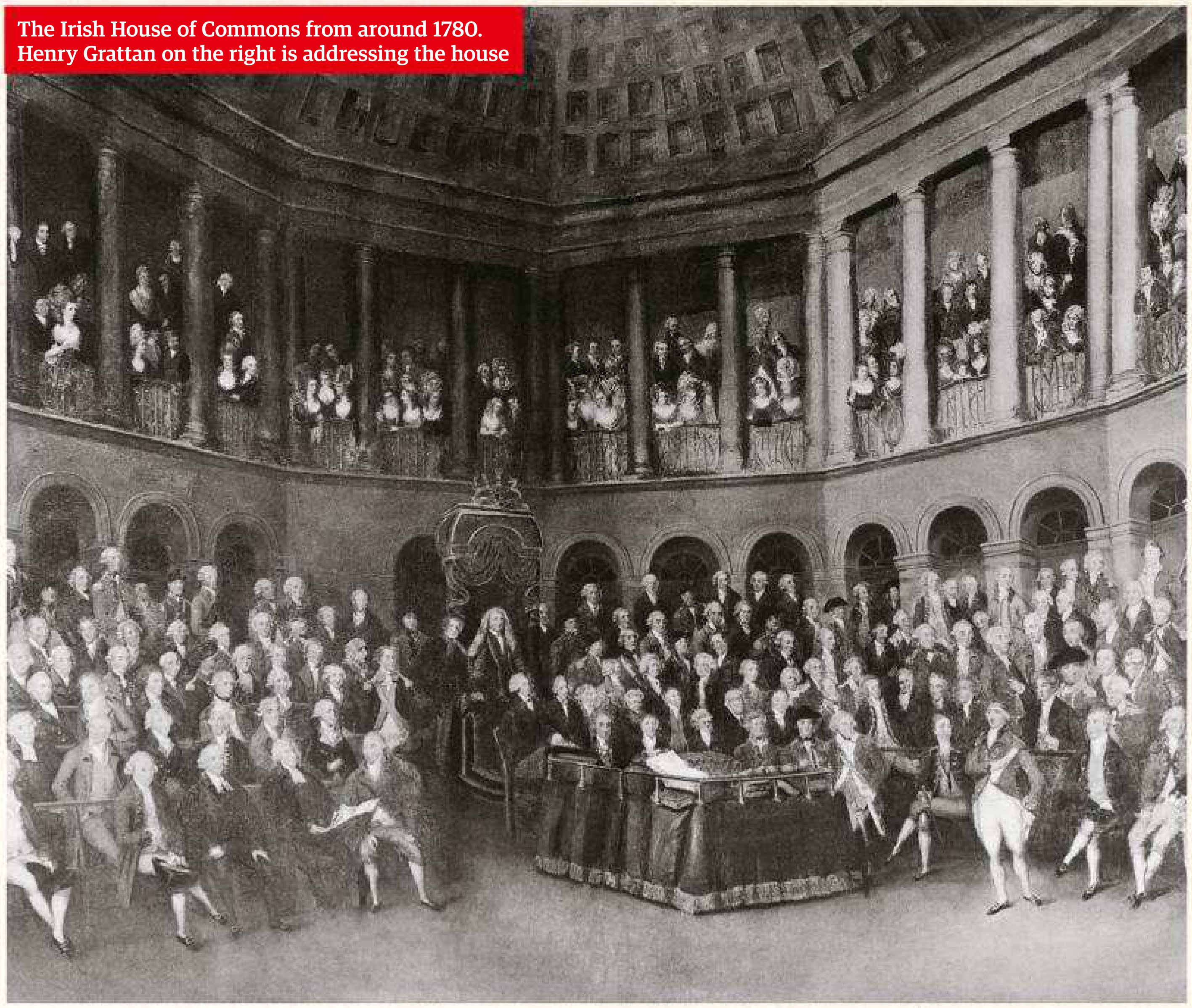
In England, Toland met Robert Harley, a leading Whig who in the later half of the 17th century had pushed for religious toleration in the constitutional framework of the Restoration.



The Irish Rebellion of 1798 as depicted in *Defeat of the Rebels at Vinegar Hill* by George Cruikshank



Wolfe Tone, leader of the United Irish



The Irish House of Commons from around 1780. Henry Grattan on the right is addressing the house

> "As the American Revolution took hold in 1776, centred around a lack or representation, early Irish nationalists watched on with interest"

Back home in Ireland, Toland had left behind the draconian reaction to the publication of his work that had raised questions about what kind of country Ireland was and should be, culminating in the founding Royal Irish Academy in 1785. The Academy published and promoted works on Irish history and culture that had previously been neglected. This invigorated nationalism in the circles of the Irish intelligentsia, as Michael Brown writes, centred around |how to create a stable island to live on", and religious toleration for the majority catholic population was obviously a key element of that.

As the American Revolution took hold in 1776, centred around a lack or representation in the British Houses of Parliament, early Irish nationalists watched on with interest. Members of the Irish Parliament, like Dublin-born Henry Grattan, began to agitate first for better access to trade in the British Empire, and then for a proposed declaration of the rights of Ireland. He succeeded in appealing the Medieval Poynings' Law.

But some were prepared to go a lot further than simply trying to bolster Ireland's position within the union. In 1791, Dublin lawyer Theobald Wolfe Tone, artillery commander James Napper Tandy and army officer Thomas Russell formed the Society of United Irishmen, whose aims were initially to secure full Catholic emancipation and reform. All of them were Enlightenment men. Tone and Russell met at the public gallery of the Irish House of Commons to discuss the merits of the Whig Party but suppression of the group by the British soon led its leaders into full-scale rebellion.

In 1798, the summary execution of 34 United men at Wexford and reports of retaliatory crimes by the North Cork militia against the locals inflamed tensions and encouraged the local peasantry into joining the army.

Ultimately, however, the rebellion was brutally crushed and, as a consequence, the British incorporated Ireland into the UK with the 1801 Act of Union. This dissolved the Irish parliament and led to the inclusion of 100 Irish MPs in the House of Commons. However, it did nothing to solve the issue. In fact, the repressive reaction to the feelings of Irishness that were imagined during the Irish Enlightenment led to over two centuries of bitter violence, culminating in the creation of the Irish Free State and The Troubles that followed.

A fractured relationship

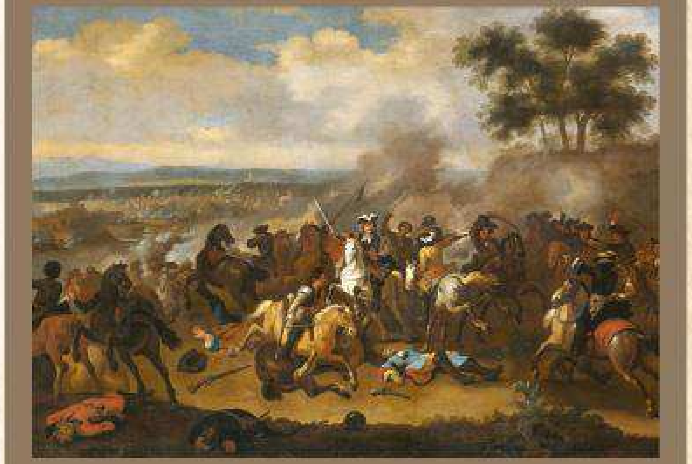
If it can be conceded that Ireland did indeed have its own period of Enlightenment, then it stemmed from its bitter relationship with the rest of the British Isles

English domination of Ireland officially began under King Henry II in 1171. Ireland was left unconquered for over 100 years after the Normans came to England and after years of independent rule under fearsome monarchs like Brian Boru, who had united the different Gaelic clans. This bolstered the imagination of Enlightenment thinkers looking for visions of a new Ireland, one that could dare to dream to be independent and that could conceive of its own history and culture.

Although there was an Irish Parliament, suggesting that on the surface Ireland did have a legitimate place in the British Empire, it was largely a façade hiding the reality that Ireland – in the minds of many in Britain even as late as the 1700s – was unruly and needed a heavy hand to keep it under control. Henry Grattan fought for the repeal of the 1494 Poynings' Law, which meant that all Irish laws had to be approved by the English government.

The necessity of these laws stemmed from the plantations that were settled by Protestant Scottish people as part of a migration policy deliberately designed to undermine the Catholic majority following the Reformation. During the 17th century, Irish Catholics were also shipped off to new colonies in the Caribbean as indentured labourers – though they were in effect slaves.

The Battle of the Boyne in 1690 pitted Irish Catholics, who supported the deposed and Catholic James II, against the Protestant settlers who rallied behind William III, who had been installed with his wife (James' daughter) Mary II under a constitutional settlement during the Glorious Revolution. James' defeat and the ultimate failure of his descendants to claim back the throne led to decades of recriminations against Catholics and intense feelings of animosity that are still felt today.

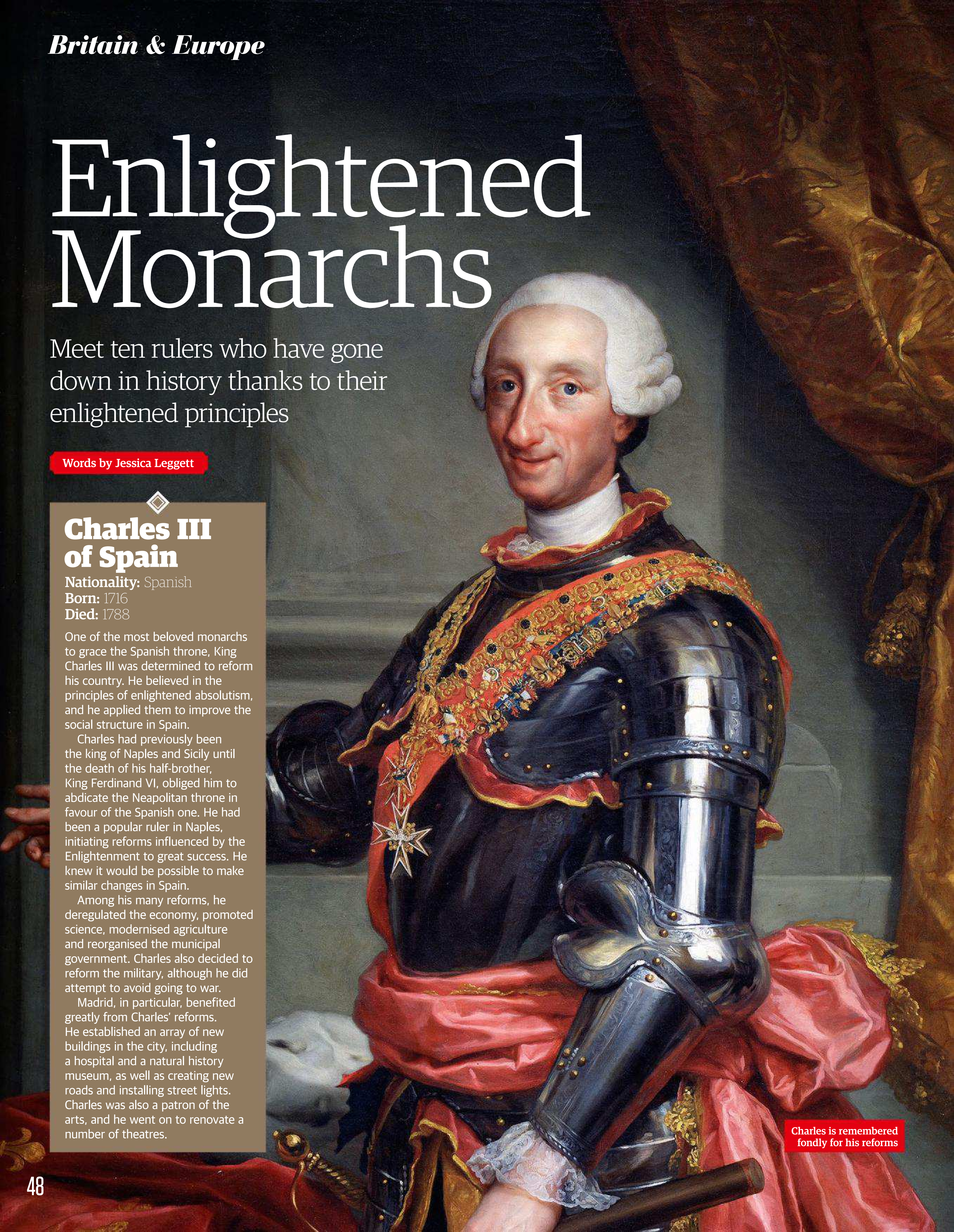


The Battle of the Boyne in 1690 pitted Irish Catholics against settled Protestants in a struggle which would resonate through the ages

Enlightened Monarchs

Meet ten rulers who have gone down in history thanks to their enlightened principles

Words by Jessica Leggett



Charles is remembered fondly for his reforms

Charles III of Spain

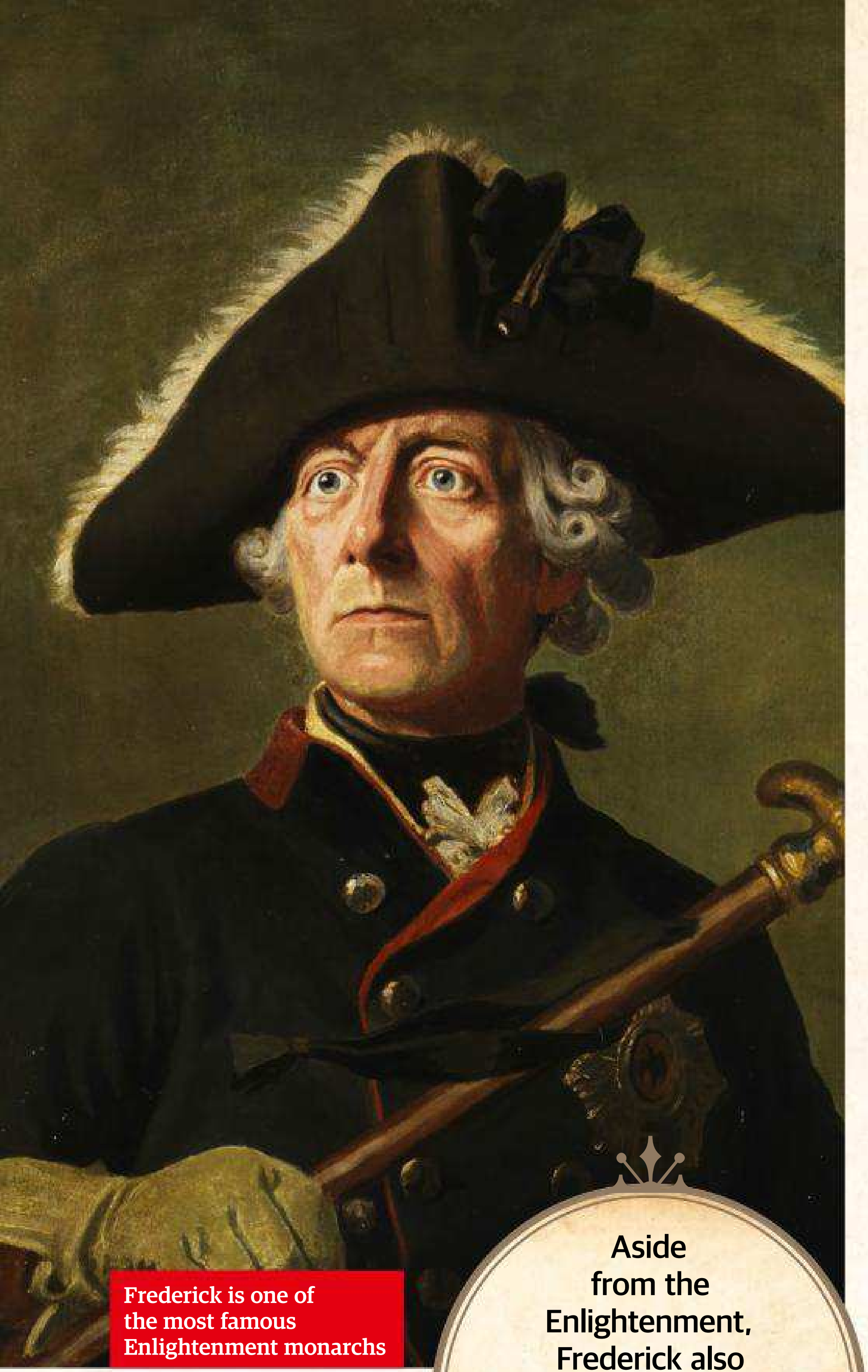
Nationality: Spanish
Born: 1716
Died: 1788

One of the most beloved monarchs to grace the Spanish throne, King Charles III was determined to reform his country. He believed in the principles of enlightened absolutism, and he applied them to improve the social structure in Spain.

Charles had previously been the king of Naples and Sicily until the death of his half-brother, King Ferdinand VI, obliged him to abdicate the Neapolitan throne in favour of the Spanish one. He had been a popular ruler in Naples, initiating reforms influenced by the Enlightenment to great success. He knew it would be possible to make similar changes in Spain.

Among his many reforms, he deregulated the economy, promoted science, modernised agriculture and reorganised the municipal government. Charles also decided to reform the military, although he did attempt to avoid going to war.

Madrid, in particular, benefited greatly from Charles' reforms. He established an array of new buildings in the city, including a hospital and a natural history museum, as well as creating new roads and installing street lights. Charles was also a patron of the arts, and he went on to renovate a number of theatres.



Frederick is one of the most famous Enlightenment monarchs

Frederick II of Prussia

Nationality: German/Prussian
Born: 1712
Died: 1786

Just like many other monarchs, Frederick the Great was a firm believer in enlightened absolutism. As a child he read widely, including a number of works that introduced him to the Enlightenment movement. They proved to be a great influence on him, as Frederick came to believe that society could only advance through an enlightened monarchy.

Frederick was king of Prussia for just over 40 years and he worked tirelessly to bring the Enlightenment to his country. A supporter of the French Enlightenment, he wrote extensively on topics such as scientific reason and literature. He even corresponded with a number of renowned writers and philosophers including Voltaire, who he invited to stay at court. They would remain in contact until the French philosopher's death in 1778.

Frederick issued a series of reforms to transform Prussia into an enlightened and modern state. He supported religious tolerance and freedom of speech, and he also reformed the education system so that it became compulsory for children to attend school. New roads and towns were built, most methods of torture were banned, and Frederick even promoted inoculation among his subjects. Today he is remembered as one of the most important kings in Prussian history.

Aside from the Enlightenment, Frederick also enjoyed French art and architecture, and even built his palace, Sanssouci, in French Rococo style

Maria Theresa of Austria

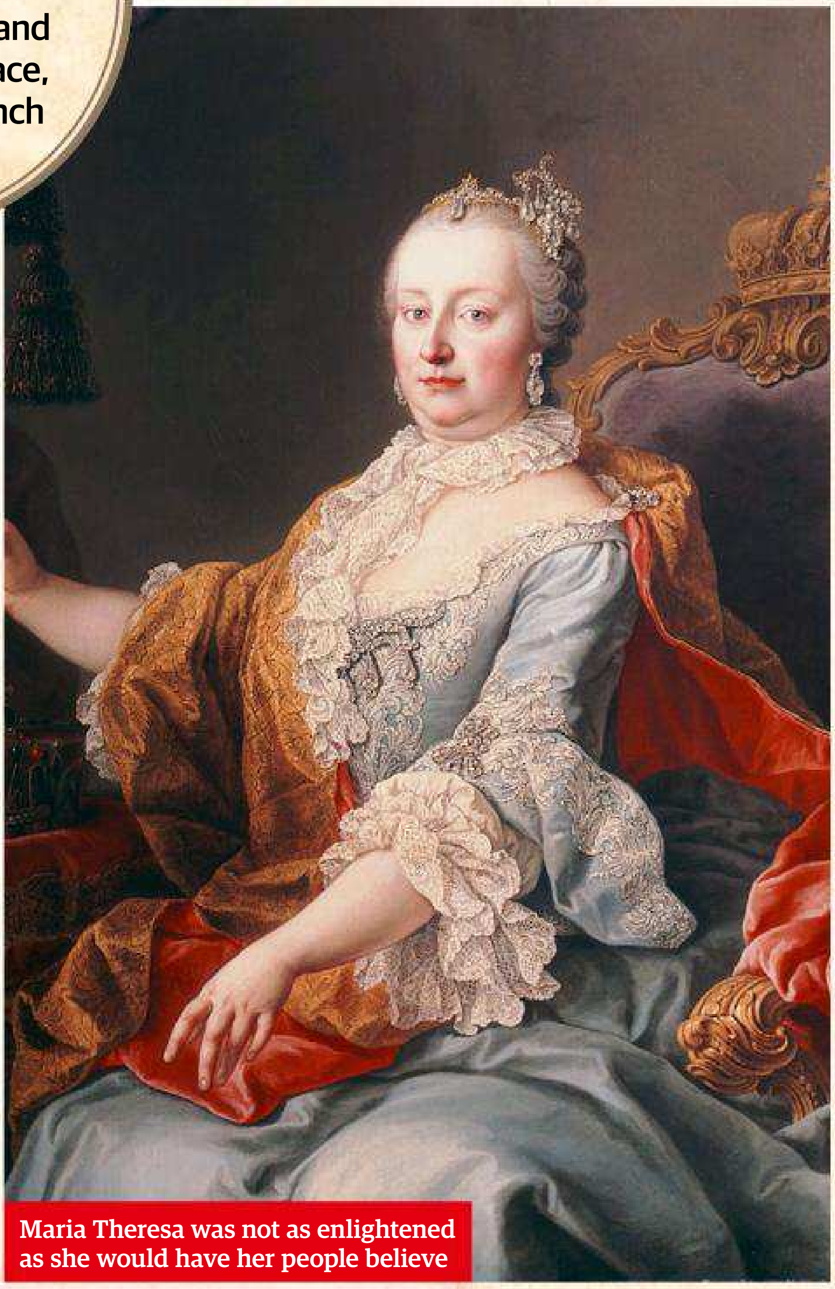
Nationality: Austrian
Born: 1717
Died: 1780

Although she is always cited as a monarch of the Enlightenment, Maria Theresa of Austria did not adhere to the movement as much as some of her contemporaries. In fact, she is often portrayed as a conservative ruler rather than an enlightened one.

Maria Theresa would not have condoned any changes that posed a threat to her position. She was not one for religious tolerance, believing that her realm depended on Catholic hegemony, and she was firmly anti-Protestant and anti-Jew – she even forced the resettlement of Protestants outside of her lands.

However, Maria Theresa did make some reforms after she had been placed in a difficult position, with her contemporaries all implementing new, enlightened policies – particularly her rival, Frederick the Great. Soon she began to make legal and administrative reforms, as well as improving the military and doubling the size of the army.

One of her most famous reforms was to introduce compulsory schooling, a change that she has been widely celebrated for. Nonetheless, Maria Theresa may have enacted reforms across her vast territories, but ultimately it was done in the interests of political and economic necessity rather than improving the lives of her people.



Maria Theresa was not as enlightened as she would have her people believe

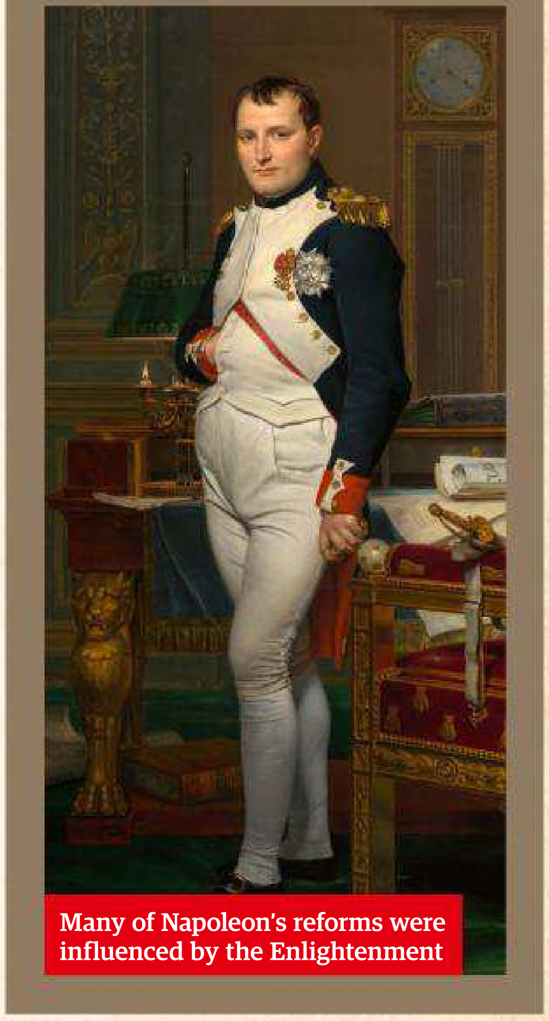
Napoleon I of France

Nationality: French
Born: 1769
Died: 1821

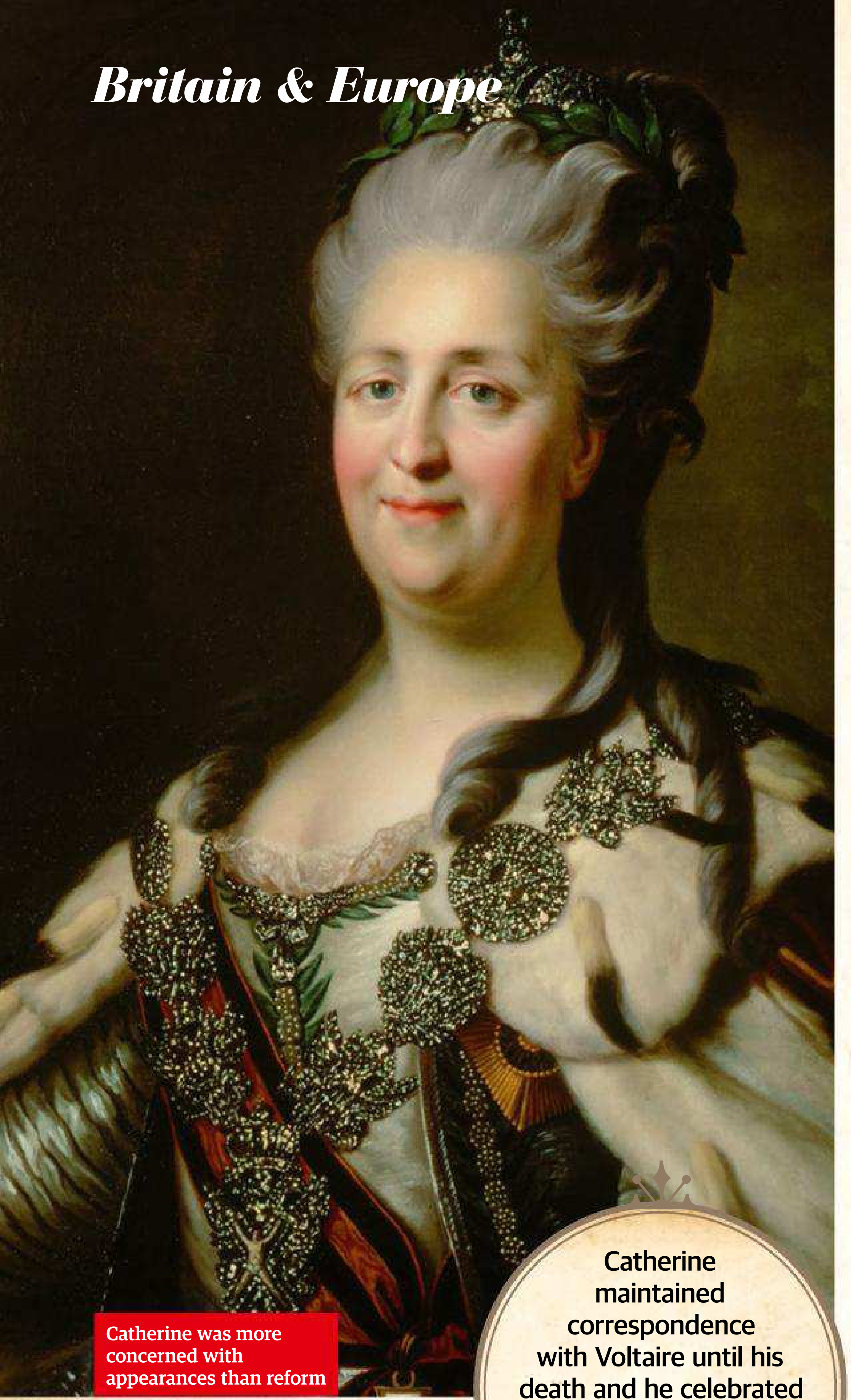
Although the Enlightenment had emerged under the Ancien Régime, Napoleon believed that it still offered the best opportunity to turn France into a well-educated society. He enacted a number of reforms, particularly in the education sector, with secondary schools founded all across the country. A standardised state curriculum was provided for all pupils, which even included a scientific education.

Notably, Napoleon's civil code also incorporated the political ideals of the Enlightenment – particularly those proposed by philosopher Jean-Jacques Rousseau. It was introduced in 1804 as a new legal framework, abolishing feudalism in France and implementing religious tolerance. Aside from politics, Napoleon also helped to foster the Enlightenment as a patron for the so-called next generation of Enlightenment philosophers, such as Volney and Daunou.

However, it has also been argued that Napoleon used the Enlightenment and its ideals to disguise his role as a military dictator under the ruse that he was developing a society of equals.



Many of Napoleon's reforms were influenced by the Enlightenment



Catherine was more concerned with appearances than reform

Catherine II of Russia

Nationality: German/Russian
Born: 1729
Died: 1796

As a keen supporter of the Russian Enlightenment, Catherine the Great had many ideas when it came to reforming her adopted country. Key among these was improving the education system, abolishing serfdom, building new cities and developing Russian culture.

Influenced by Western philosophers of the Enlightenment, Catherine even created her *Nakaz*, also known as *Great Instruction*, which outlined her idea of the perfect government. She even assembled a Legislative Commission in 1767 with the intention of using the Enlightenment to change Russia for the better.

Interestingly, despite her many reforms, it was Catherine's aim to appear like an enlightened ruler rather than actually becoming one, using the principles of the movement to reinforce her rule as an absolute monarch. The best example of this is the issue of serfdom in Russia, which Catherine had initially been open to reforming.

But the economy depended on the serfs as a work force, who in turn belonged to the aristocracy. To maintain her power, Catherine needed the support of these nobles, and consequently did nothing to help the situation of the serfs during her reign. Ultimately, maintaining her position and power as empress was more important to Catherine than improving the lives of her citizens.

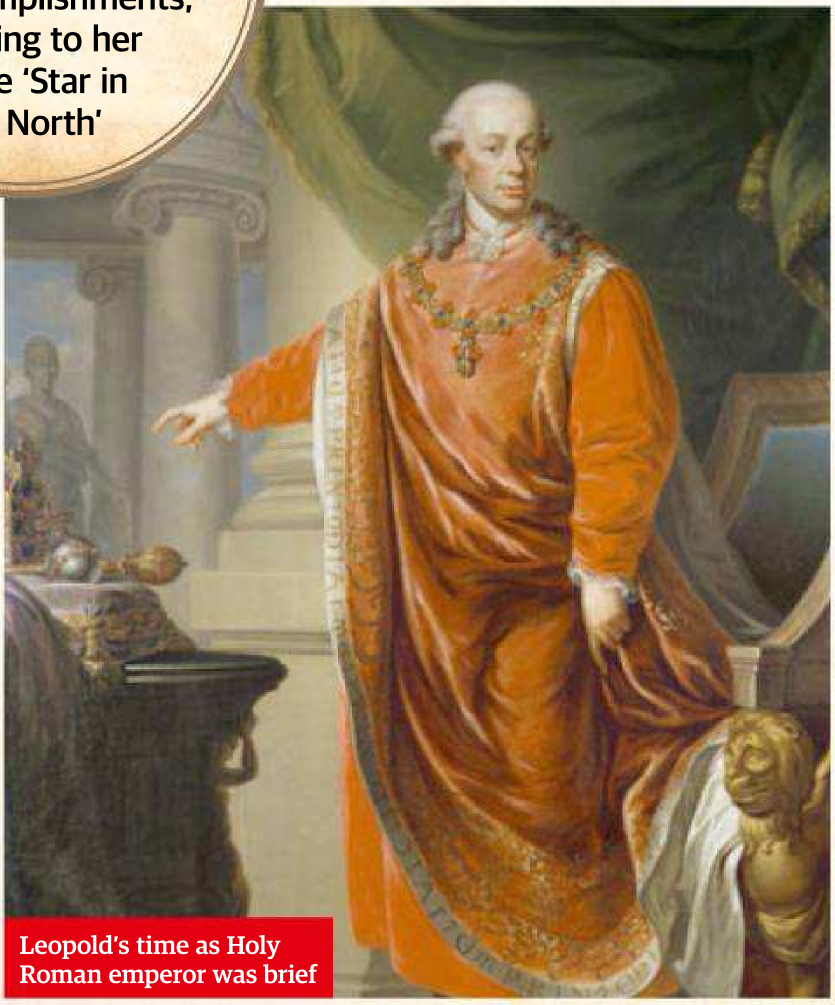
> Catherine maintained correspondence with Voltaire until his death and he celebrated her accomplishments, referring to her as the 'Star in the North'

Leopold II, Holy Roman Emperor

Nationality: Austrian
Born: 1747
Died: 1792

Leopold was the third son of Maria Theresa and Francis I, and just like his older brother, Emperor Joseph II, was influenced by the Enlightenment. After the death of his father in 1765, he became the grand duke of Tuscany. He implemented a series of enlightened reforms in the duchy focused on administration and taxation, and abolished the death penalty, banned torture and reformed the inhumane treatment of those who were mentally unwell.

Although Leopold was not all that popular with his people, he did lead his duchy to prosperity. However, with the death of Joseph in 1790, Leopold moved to Vienna after being elected as the next Holy Roman emperor. He chose to reverse some of Joseph's hasty enlightened policies, but also kept some of them, such as religious tolerance and emancipation for the peasantry. Sadly he died just 18 months into his reign.



Leopold's time as Holy Roman emperor was brief

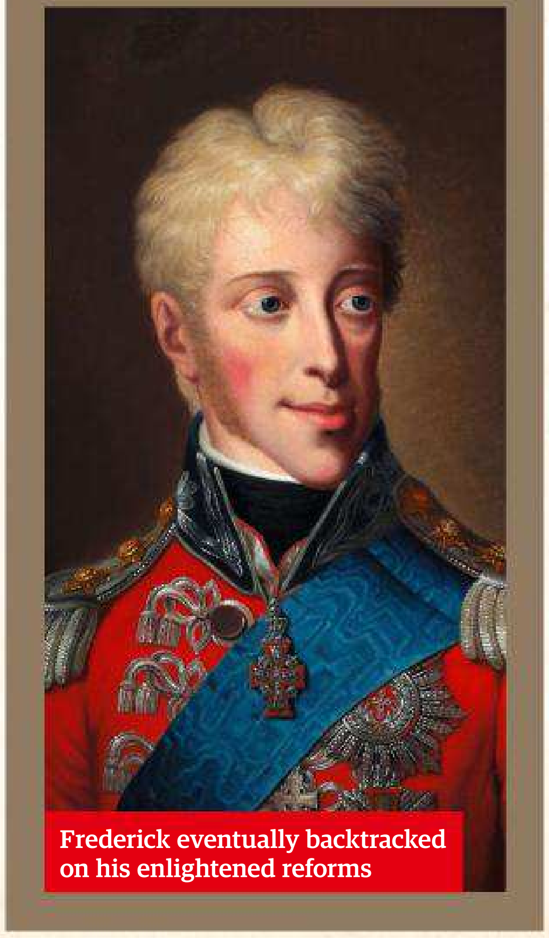
Frederick VI of Denmark

Nationality: Danish
Born: 1768
Died: 1839

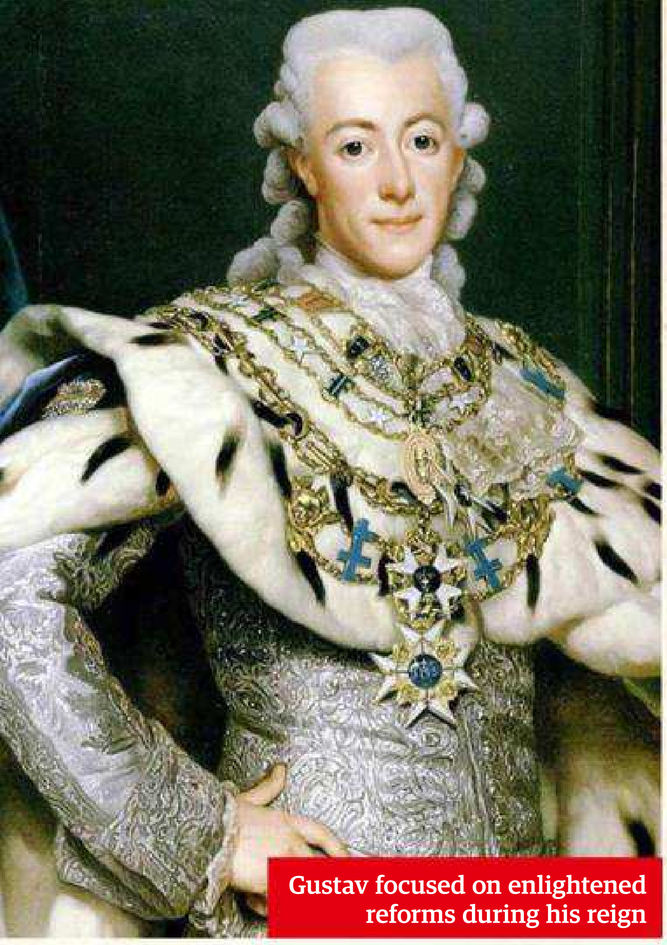
Another monarch who was raised on the work of enlightenment thinkers such as Voltaire and Rousseau, King Frederick VI supported the movement as much as his contemporaries, as well as his advisors.

Initially, Frederick proved to be a liberal leader during his time as Crown Prince Regent on behalf of his mentally unstable father, King Christian VII. Political, domestic and economic freedoms, along with religious tolerance, formed a central part of his agenda. Frederick hoped that this would develop the enlightenment in his country.

However, the situation changed following the disastrous Napoleonic Wars, where Frederick had supported the defeated Napoleon. After ceding the Norwegian crown and fearing that he would be faced with rebellions, Frederick stopped issuing his enlightenment reforms. Tough restrictions were also reintroduced when it came to freedom of speech, and any opposition was suppressed, including on constitutional matters. This allowed Frederick to develop a firmly absolutist government.



Frederick eventually backtracked on his enlightened reforms



Gustav focused on enlightened reforms during his reign

Gustav III of Sweden

Nationality: Swedish
Born: 1746
Died: 1792

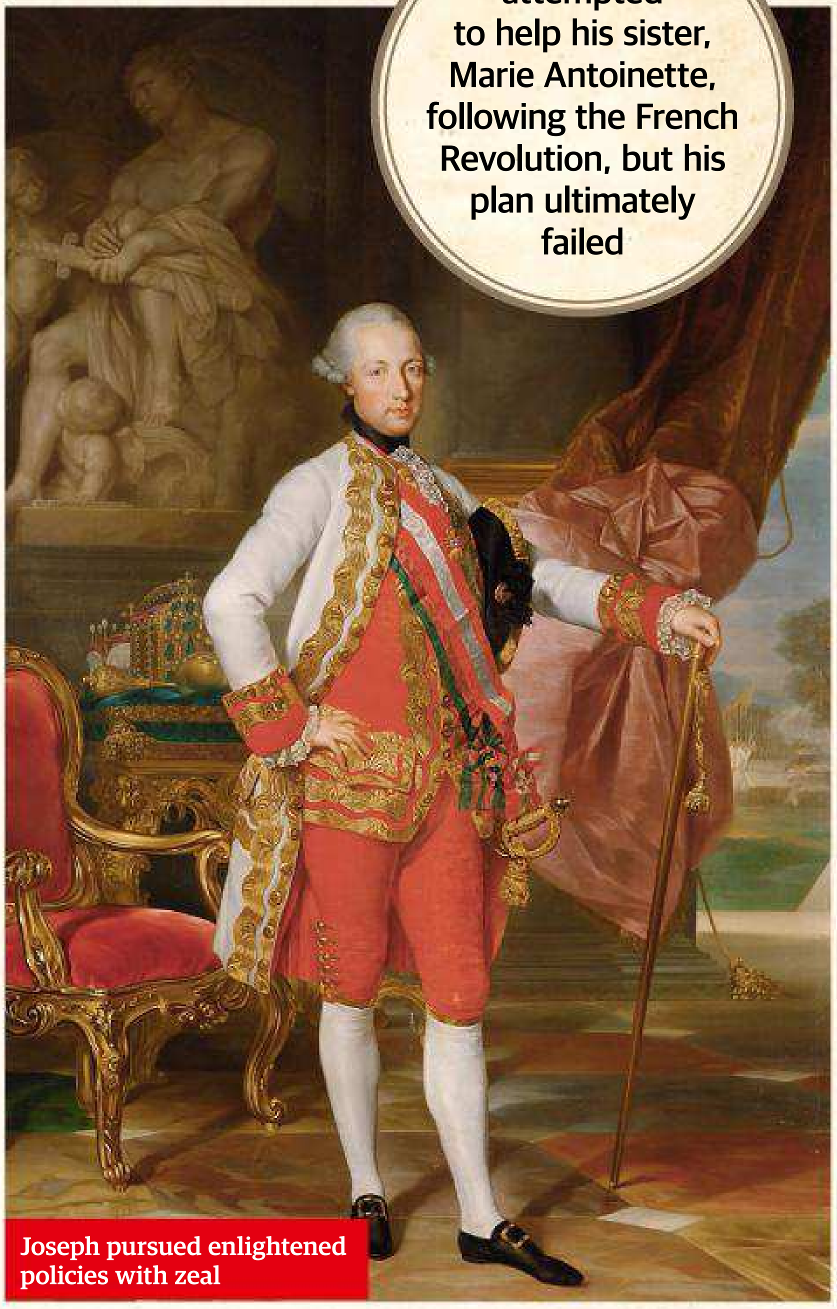
When he assumed the Swedish throne in 1771, King Gustav was faced with a country that was steeped in corruption with the government holding true power. In 1772, he led a coup d'état and seized control from the government, determined to restore royal authority once and for all.

Another admirer of Voltaire, Gustav applied the Enlightenment principles to his reforms, and even sent news of his new constitution to the philosopher. His focus was widespread as he initiated reforms centred on administration, trade, education, the military and the economy, while simultaneously purging corruption from these areas. Gustav also implemented changes to the penal system, abolishing the use of torture and introducing fairer penalties that were considered more humane.

Just like other enlightened monarchs, Gustav introduced religious tolerance to his realm and was a noted patron of the arts. Although he had changed the regime in Sweden, he did stop short of developing absolute power. He may have wished to reform his country, but Gustav was also concerned with his reputation, hoping that his actions would win him praise across the newly enlightened continent.

After years of disgruntlement, there were many among the Swedish nobility who opposed King Gustav, leading to his assassination in 1792

Joseph attempted to help his sister, Marie Antoinette, following the French Revolution, but his plan ultimately failed



Joseph pursued enlightened policies with zeal

Joseph II, Holy Roman Emperor

Nationality: Austrian
Born: 1741
Died: 1790

While his mother, Maria Theresa, hovered on the line between conservative and enlightened, Joseph was fully committed to being an enlightened absolutist. This ultimately caused friction between the pair when they became co-rulers, not least because Joseph admired his mother's nemesis, Frederick the Great. When Maria Theresa finally died in 1780, Joseph was left to pursue the policies he wished.

Immediately, he set to work issuing various enlightened reforms. To name just a few, Joseph relaxed censorship of the press, liberated the serfs, rationalised administration across his territories, made the use of the German language compulsory and even abolished the death penalty. In fact, Joseph issued so many reforms that the term 'Josephinism' was eventually coined.

He also proved to be far more tolerant of religions other than Catholicism – unlike his mother, who supported the counter-reformation. Like many other enlightened monarchs, Joseph is also remembered for his love of the arts and he famously became a patron of Mozart, leading to his nickname as 'the musical king'.

Unfortunately for Joseph, he underestimated the amount of support he would get for his new enlightened reforms. He issued them too quickly, with no real preparation in place to deal with his changes, which led to continued conflict in his realm.

Louis XVI of France

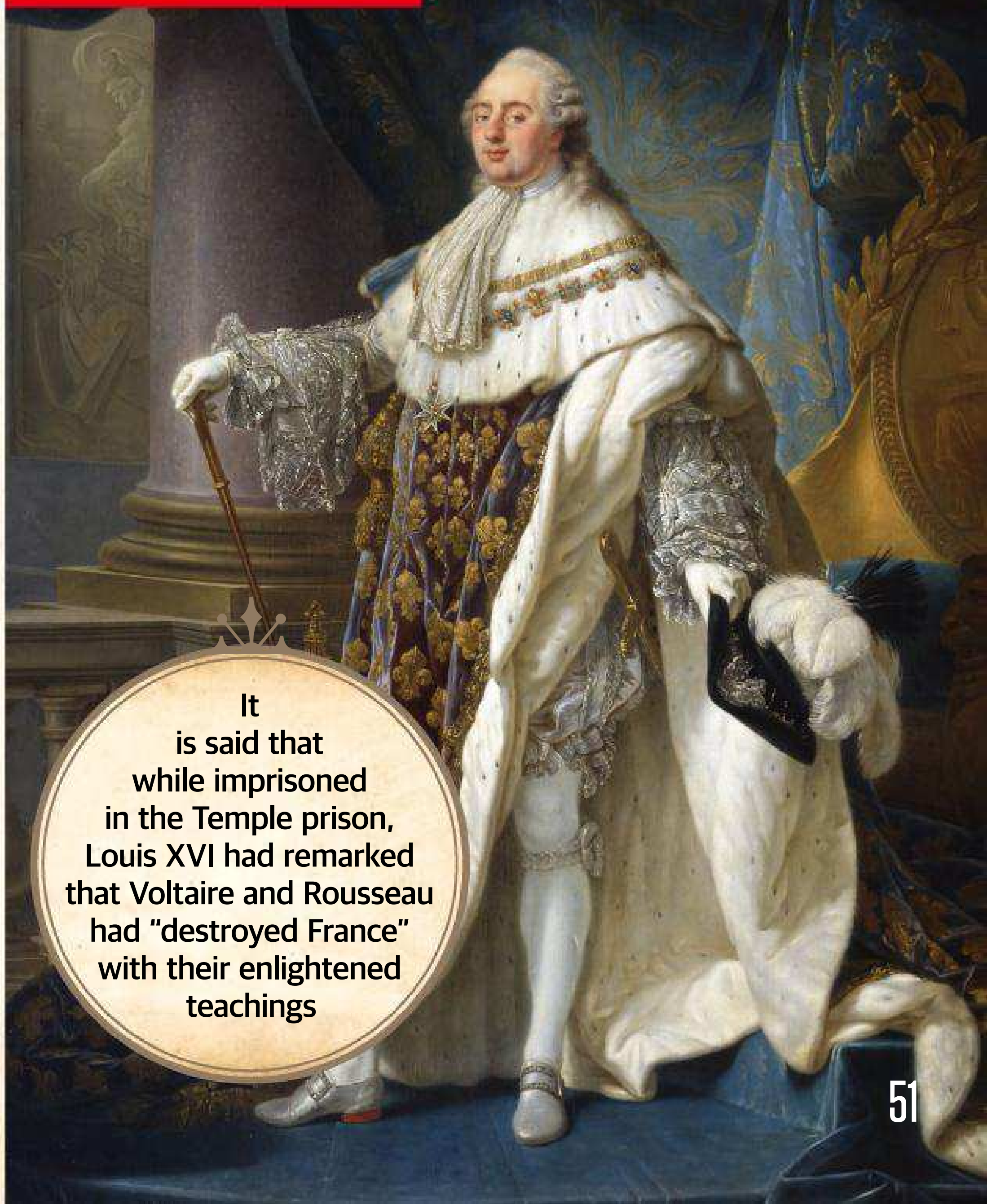
Nationality: French
Born: 1754
Died: 1793

Perhaps one of the most controversial figures in history, King Louis XVI has often been marked as a poor monarch who never understood the needs of his people. While he made mistakes, it would be wrong to say that he never attempted to pursue reforms during his reign

He initially attempted to create reform in France after becoming influenced by the Enlightenment. Louis tried to abolish serfdom, implement fiscal reform and allow religious freedom, but was faced with heavy opposition from the nobility, who ultimately quashed his efforts. However, Louis did succeed in introducing the Edict of Versailles, which awarded legal and civil status to non-Catholics in the country.

While some monarchs strengthened their autocracy using the Enlightenment, it is often argued that it actually contributed to the French Revolution and the downfall of Louis and the monarchy, as its follower criticised the corruption and immorality among the nobility and indeed the crown.

The Enlightenment weakened, rather than strengthened, Louis's position



It is said that while imprisoned in the Temple prison, Louis XVI had remarked that Voltaire and Rousseau had "destroyed France" with their enlightened teachings

Sir Isaac Newton

Often considered the father of modern-day physics, meet one of the most influential scientists of all time

Sir Isaac Newton was an English physicist who laid down the foundations of modern-day classical mechanics. The core of this was his description of universal gravitation and clarifying the existing three laws of motion, which he brought together under one system. This allowed Newton to demonstrate that the motions of celestial bodies were dictated by a single set of universal laws, radically shifting scientific thought away from heliocentrism - the idea of the Sun being at the centre of the universe - and setting the stage for Einstein's theories of general and special relativity over 200 years later.

At the time Newton was admitted to Trinity College, Cambridge, in 1661, the university was still basing much of its scientific and mathematical teachings on Aristotle. However, due to Newton's widespread reading of many modern thinkers, the institution was slowly introducing the ideas of Descartes, Kepler and Galileo. He graduated in 1665 and spent the next two years formulating his theories on calculus, optics and gravitation.

Following this, Newton became more interested in optics and he lectured on it between 1670 and 1672. It was during this period that he developed the Newtonian telescope, the world's first functional reflecting specimen, which he presented to the Royal Society alongside an investigation into the refraction of light. He proceeded to conduct much work into the nature and properties of light over the next 30 years, which would culminate in the publication of his 1704 text *Opticks*.

Prior to that, in 1687, Newton published his ground-breaking book *Philosophiae Naturalis Principia Mathematica*, which outlined his laws of motion, universal gravitation and a derivation of Johannes Kepler's laws of planetary motion. Even though his genius had already been noted, this seminal text's success established him in scientific society. He would not only be welcomed into the Royal Society, but also knighted by Queen Anne - only the second scientist to have been awarded the title. Newton also acquired a keen circle of admirers including Edmond Halley.

Newton continued his work in mathematics, astronomy and optics, but also took up the post of warden and then master of the Royal Mint, . In addition, in 1703 he was elected president of the Royal Society and an associate of the French Académie des Sciences.

A life's work

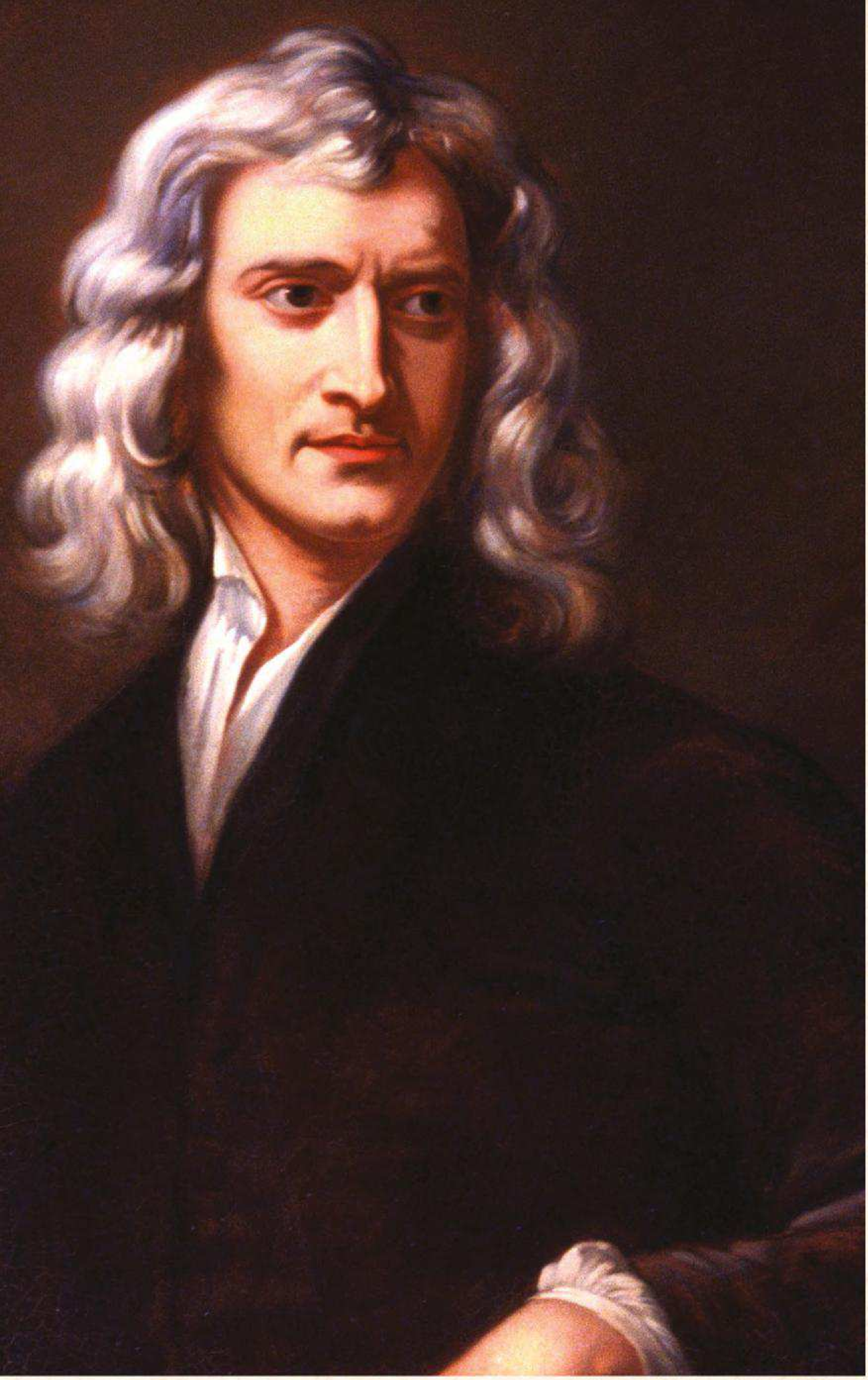
1643
Isaac Newton is born on 4 January in Lincolnshire, England.

1655
Newton attends the King's School from the age of 12 to 17.

1661
He's attends Trinity College, Cambridge. After four years, he obtains a degree in maths.

1670
Newton takes his interest in optics and astronomy to a new level by lecturing on the subjects at Cambridge.

1672
Newton builds his famous reflecting telescope (right) and presents it to the Royal Society in London.



Getting to know Isaac Newton

Five things you need to know about one of the English Enlightenment's greatest scientists

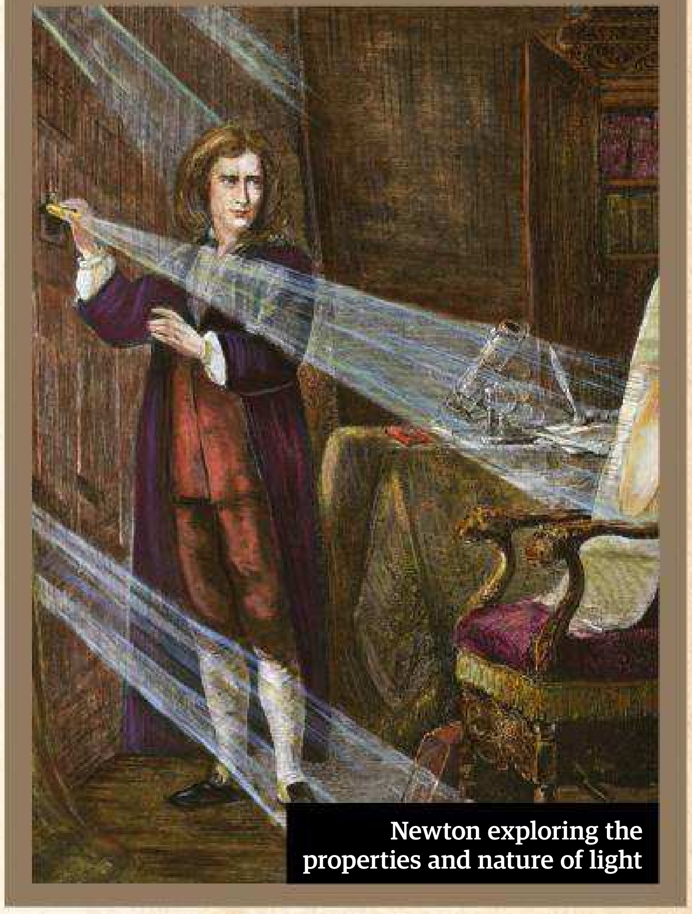
1 Despite Newton's great scientific achievements, he actually wrote more on biblical hermeneutics and occult studies than science. He was a lifelong, if unorthodox, Christian.

2 Newton was only the second scientist in history to be bestowed a knighthood, which he was awarded in 1705. His coat of arms was a shield with two crossed shinbones.

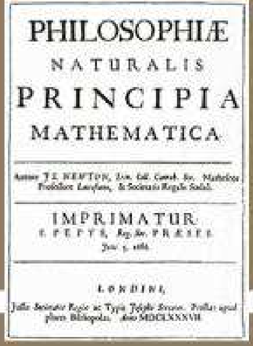
3 Newton was warden of the Royal Mint during the Great Recoinage of 1696. During his time at the Royal Mint he successfully prosecuted 28 forgers for creating illegal currency.

4 In 1704, Newton attempted to glean scientific information from the Bible. From what he extracted from the religious text, he predicted that the end of the world would come no earlier than 2060.

5 After Newton's death in 1727, his hair was found to contain high levels of mercury, indicating he had suffered mercury poisoning.



Newton exploring the properties and nature of light



PHILOSOPHIÆ
NATURALIS
PRINCIPIA
MATHEMATICA

IMPRIMATUR

LONDINI,

1687
Newton publishes *Philosophiae Naturalis Principia Mathematica* after years of research into gravitation and planetary motion.

1704
Newton publishes Opticks, which demonstrates how a prism can act as a beam expander.

1705
Newton is knighted by Queen Anne due to his scientific work and role as master of the Royal Mint.

1724
With old age and failing health Newton moves in with his niece and her husband at Cranbury Park, near Winchester, England.

1727
Newton dies in his sleep on 31 March. He is aged 84.

Science in the Age of Reason

Meet the early scientists who forged the new disciplines of biology, chemistry and physics

Words by Scott Reeves

On 28 November 1660, Christopher Wren, a 28-year-old professor of astronomy at Gresham College in London, delivered one of the free weekly lectures for which he was becoming renowned. Afterwards, he met with 11 regular attendees of his talks in the rooms of Lawrence Rooke, Gresham's professor of geometry. The ad-hoc committee decided to form of a "college for the promoting of physico-mathematical experimental learning", which would meet regularly to run experiments and discuss the latest scientific discoveries.

A list of 40 desirable members was drawn up and the process of recruiting them began. It was a success, with many of the great thinkers of the day joining. Antiquarian Elias Ashmole, mathematician Isaac Barrow and chemist Robert Boyle were among the early fellows of the society. They even won the backing of King Charles II, who a signed a charter turning the group into the Royal Society of London for Improving Natural Knowledge.

The Royal Society was the result of a new way of thinking about the world that swept through Europe in the Scientific Revolution. No longer were natural philosophers willing to blindly accept the accepted theories that had been passed down since classical times. The new breed of scientific thinkers wanted to be able to see the evidence with their own eyes and the new Royal Society's motto, 'nullius in verba', meant 'take nobody's word for it'.

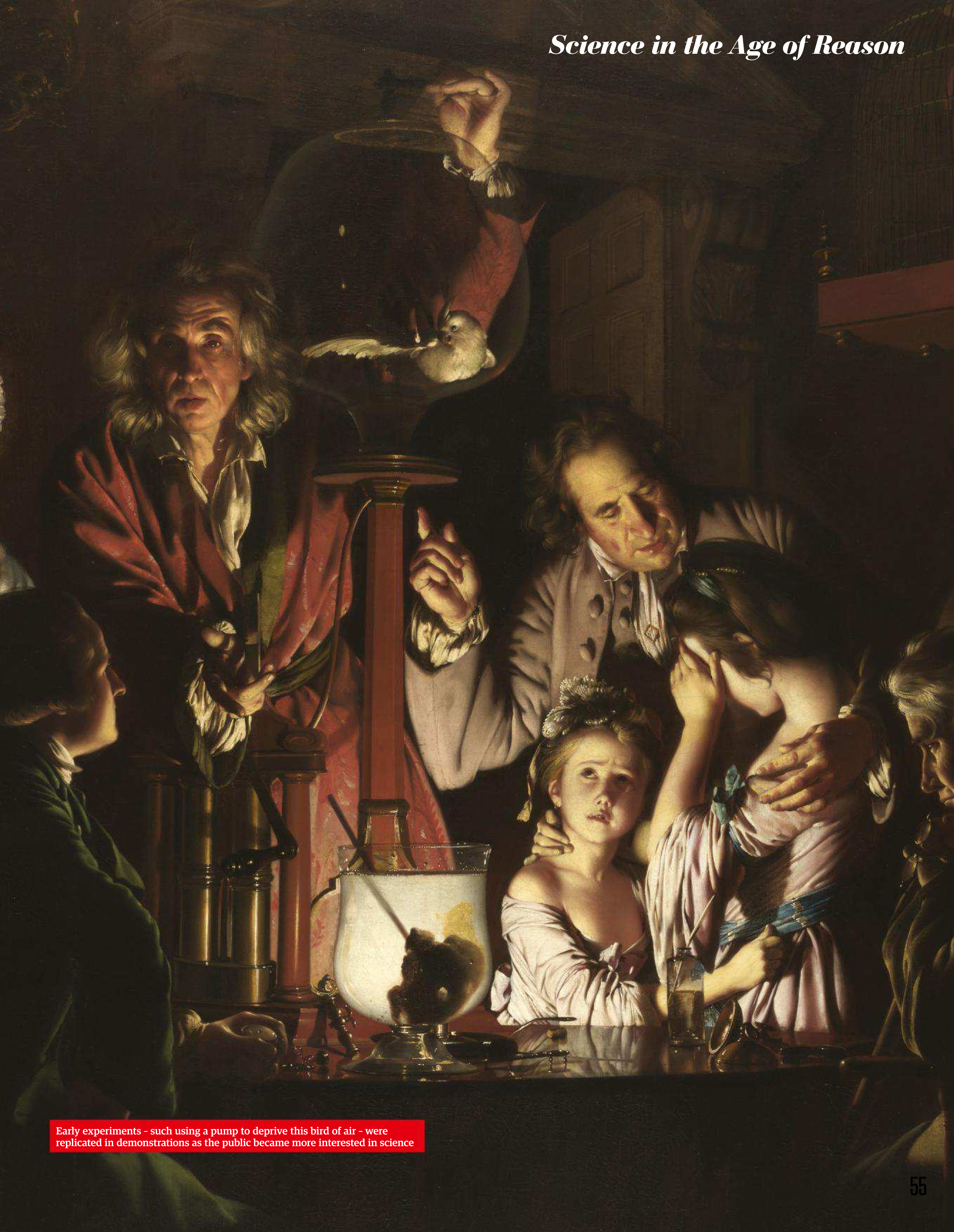
One of the Royal Society's first meetings discussed the properties of water in glass pipes. During the discussion, a young research assistant named Robert Hooke distinguished himself among his peers. Hooke's intellect must have impressed those around him because seven months later, he was asked to take up the post of the Society's curator of experiments.

Like most of his contemporaries, Hooke was a polymath with interests across the scientific and philosophical spectrum. However, he gained the most fame through his experiments using a microscope. Hooke was among the first to use the new microscopic technology to observe the natural world, with jaw-dropping results. He showed that the structure of a plant was similar to that of honeycomb cells, giving rise to the use of 'cell' as a biological term. His illustrations of insects like fleas and lice showed the miniature world to be astounding in its perfection - the fold-out images in his 1665 tome, *Micrographia*, stunned those who read the book. Hooke also used his microscope to study fossils, concluding that fossilised objects were the remains of living things that had been soaked in mineralised petrifying water. His suggestion that fossils might represent now-extinct plants and animals was an early step on the path that would eventually end up with Charles Darwin and the theory of evolution.

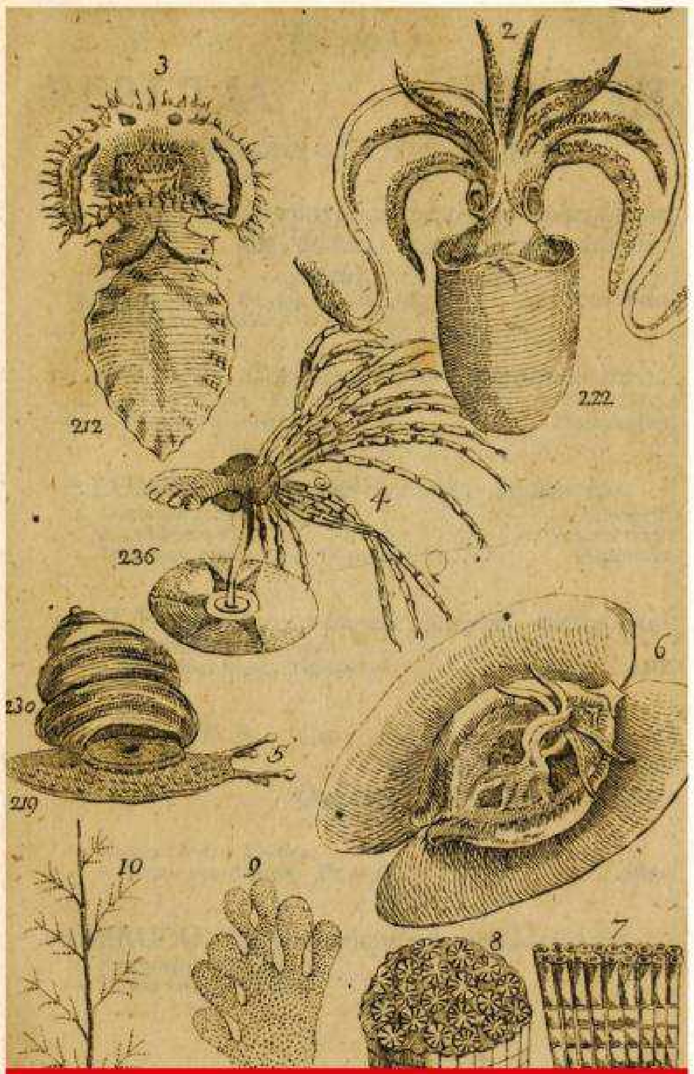
However, not all scientific thought in the Age of Enlightenment occurred under the aegis of the Royal Society. It was Carl Linnaeus, a Swedish zoologist from Uppsala University, who was responsible for introducing a new system of taxonomy for the natural world. In 1735, he published the first edition of *Systema Naturae*, a landmark work in which he split all life into three categories - animal, plant and mineral - with further subdivisions depending on the features of the specimen in question. Linnaeus further refined his work and in the tenth edition, published in 1758, he introduced binomial nomenclature, giving each specimen a formal, Latin, two-part name that revealed its genus and species: for blackbirds, Turdus merula; for cats, Felis catus.

Scientific developments like those of Hooke and Linnaeus rarely happened in isolation. Sir Isaac Newton, who himself worked closely with colleagues in the Royal Society, said, "If I have seen further, it is by standing on the shoulders of giants." By the 18th century, a number of different people were standing on Newton's own shoulders, taking his ground-breaking work on classical mechanics and further refining and developing it.

Among them was Daniel Bernoulli, a Swiss mathematician who was not even born when Newton wrote *Principia*. Bernoulli devoured Newton's ideas in his early years and adopted them into his mathematical studies of the behaviour of gases and fluids. He investigated blood flow by puncturing the wall of a pipe with a small open-ended straw and noting that the fluid behaved differently depending on its pressure. It led to an effective but painful technique of measuring blood pressure by pricking a pointed glass tube into a patient's artery. Bernoulli also experimented with vibration, pondering the equations necessary to explain the frequency and harmonics of vibrating strings and objects.



Early experiments - such using a pump to deprive this bird of air - were replicated in demonstrations as the public became more interested in science



Modern taxonomy – the organisation and classification of living organisms – began with *Systema Naturae*

Bernoulli was typical of a new generation of physicists on the continent who were more successful at developing Newtonian mechanics than Newton's own countrymen in Britain. Among them were Jean le Rond d'Alembert and Pierre Louis Maupertuis, whose ground work culminated in Joseph-Louis Lagrange's *Mécanique Analytique*, a refined version of Newton's laws released 101 years after they were first published.

D'Alembert, Maupertuis and Lagrange were all members of the Royal Academy of Sciences, a learned society set up by King Louis XIV in 1666 just six years after the Royal Society in London. Nor did scientists only have to choose between London and Paris. More hubs of learning were created when royal-sponsored learned societies were established in Berlin in 1700, Saint Petersburg in 1724 and Stockholm in 1739; while 70 other, smaller societies cropped up in cities throughout Europe, including Birmingham's famous Lunar Society.

One of the roles of the learned societies was to publish the research of their members, helping to disseminate knowledge to a wider audience. Robert Hooke's *Micrographia* and Isaac Newton's *Principia* were both released by the Royal Society in book form, but most of its research was made available in the quarterly journal *Philosophical Transactions of the Royal Society*. However, the quality and quantity of society and academy proceedings were rather hit and miss. The French Royal Academy of Sciences was known for its sluggish publication record, with delays between volumes often encompassing years. At one stage, there was a seven-year lag between a paper being discussed at the Academy and being published in its memoirs.

Where societies could not be prevailed or persuaded to publish, scientists either had to fund publications themselves or rely upon the patronage of friends – without the benevolence of others, Linnaeus' *Systema Naturae* and Lagrange's *Mécanique Analytique* would never have seen the light of day. Independent periodicals began to take up some of the slack. The publishers of these journals realised that there was a desire for mass-appeal scientific writing. Most of the independent journals treated their readers to a mix of reviews, abstracts and translations of research.

Several writers dedicated themselves not to cutting-edge research, but the communication of scientific knowledge to the wider world. Bernard de Fontenelle's *Conversations on the Plurality of Worlds,* released in 1686, was the first popular science book designed to appeal to the masses. He largely focused on the work of Nicolaus Copernicus, almost 150 years after it was first published, but presented Copernicus' ideas in the form of a conversation between a philosopher and a nobleman. Rather than being written in Latin, Fontenelle wrote in

◆

Enlightened minds

Discover five scientists who conducted landmark experiments during the Age of Enlightenment

Pierre-Simon Laplace

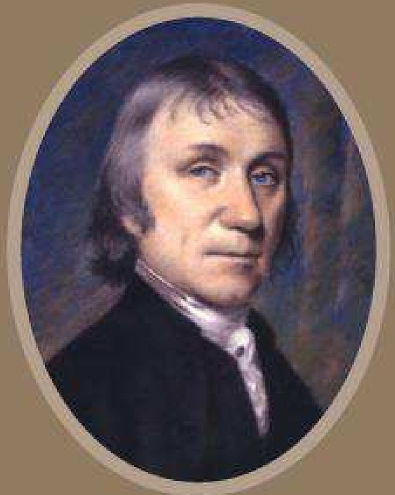
MATHEMATICS AND PHYSICS

Sometimes referred to as the French Newton, Laplace refined Newton's classical mechanics, using it to demonstrate the stability of the solar system. A teacher at the military college in Paris, among his students was a young Napoleon Bonaparte, who later appointed Laplace as minister of the interior.

Jean-Baptiste Lamarck

BIOLOGY

After retiring from military service, Lamarck threw himself into his passion – the study of the natural world. He published a major study on invertebrates, a term he coined, and was the first to use the word 'biology' in its modern sense. He was also a cofounder of the French National Museum of Natural History.



Joseph Priestley

CHEMISTRY

One of three scientists who independently discovered oxygen, Priestley also experimented with electricity and brought us soda water. An undoubted genius, his reputation unfortunately suffered after he defended the outdated phlogiston theory in the face of new ideas put forward by one of his cofounders of oxygen, Antoine Lavoisier.

Johann Elert Bode

ASTRONOMY

Years before one was ever found, Bode predicted the existence of a planet beyond Saturn via a mathematical formula. When one was eventually discovered, he also solved the conundrum of naming of the new planet. He opted for Uranus: since Saturn was the father of Jupiter, he thought the next planet in line should be named after the father of Saturn.

Robert Hooke

VARIOUS

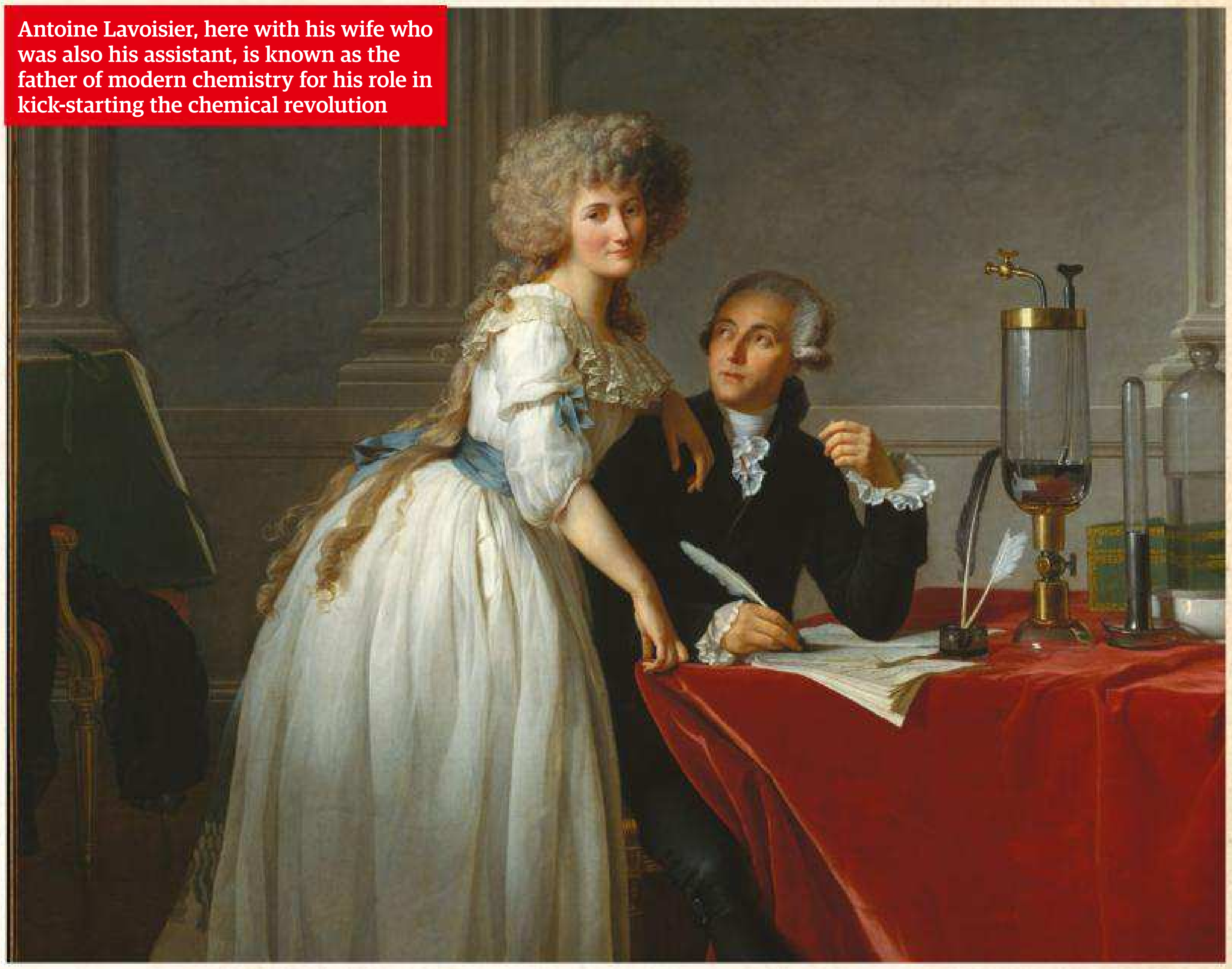
Aside from his famous microscopic work, Hooke experimented with vacuum pumps, observed the rotations of Mars and Jupiter, and investigated the properties of light. However, suspicion surrounds some of Hooke's work, with critics suggesting he took advantage of his position in the Royal Society to claim credit for other people's work.

vernacular French. He also hoped that his book would be read by women, an audience that was very specifically targeted by Francesco Algarotti in *Newtonism for Women*, a tremendously popular book first released in 1737.

Both men and women could gaze in wonder at the skies above, so perhaps it is no surprise that some of the most popular scientific writing explored the mysteries of the wider universe. More powerful and precise telescopes meant that the Age of Enlightenment was a golden era for the observation of the solar system and wider universe. Astrology, previously a popular belief in which the movement and position of heavenly bodies could predict the future, gave way to the more scientific pursuit of astronomy, where observers attempted to explain the motion and paths of objects in the night sky.

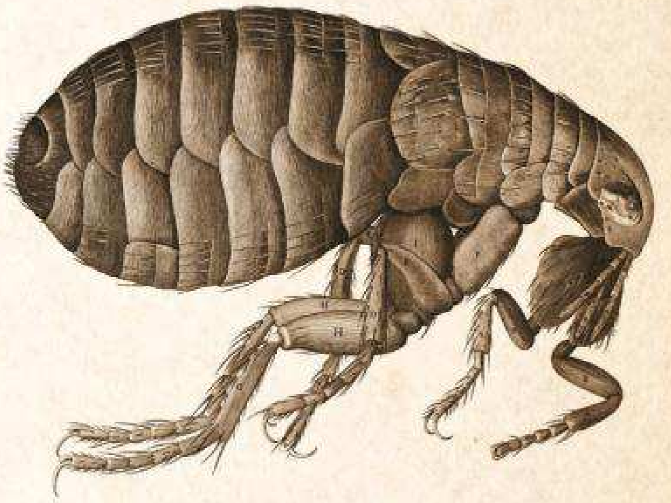
Among the new astronomers was William Herschel, who scoured the skies on 13 March 1781 in a search of double stars. Instead he spotted something different and, after making many observations and plotting its orbit, he discovered that it was a previously unknown planet. It was the first planet to be discovered by telescope, expanding the boundary of the solar system. London-based Herschel named the planet Georgium Sidus in honour of King George III, but in France – where naming a planet after the British king not a popular move – it was known as Herschel. Only after Herschel's death did the planet come to be known as Uranus.

In comparison to distant Uranus, Venus was one of the brightest objects in the night sky and had been known for as long as mankind had been able to look up. However, Mikhail Lomonosov was the first to notice a ring of light around the planet during its transit across the Sun in 1761. Lomonosov worked out that the light of the sun was being refracted, suggesting for the first time that Venus had its own atmosphere.


Antoine Lavoisier, here with his wife who was also his assistant, is known as the father of modern chemistry for his role in kick-starting the chemical revolution

In 1705, Edmund Halley plotted the course of a particularly bright comet through the night sky and, comparing it to previous observations noted in historical sources, deduced that the comet had a set path and returned every 70 years or so. Halley also plotted the position of stars and compared them with ancient star maps, concluding that they were also moving. Further research on stellar parallax meant that James Bradley was able to come up with an estimate close to the correct speed of light, while John Michell theorised about the existence of a dark star from which light could not escape – a precursor to black holes.

Copernicus and Newton laid the foundations for a century of progress in astronomy and physics, but the study of chemistry initially lagged behind at the start of the Enlightenment. Many still believed in the old ideas of alchemy and had an incomplete


Robert Hooke's microscopic observations unveiled the full glory of the natural world

The electrified boy

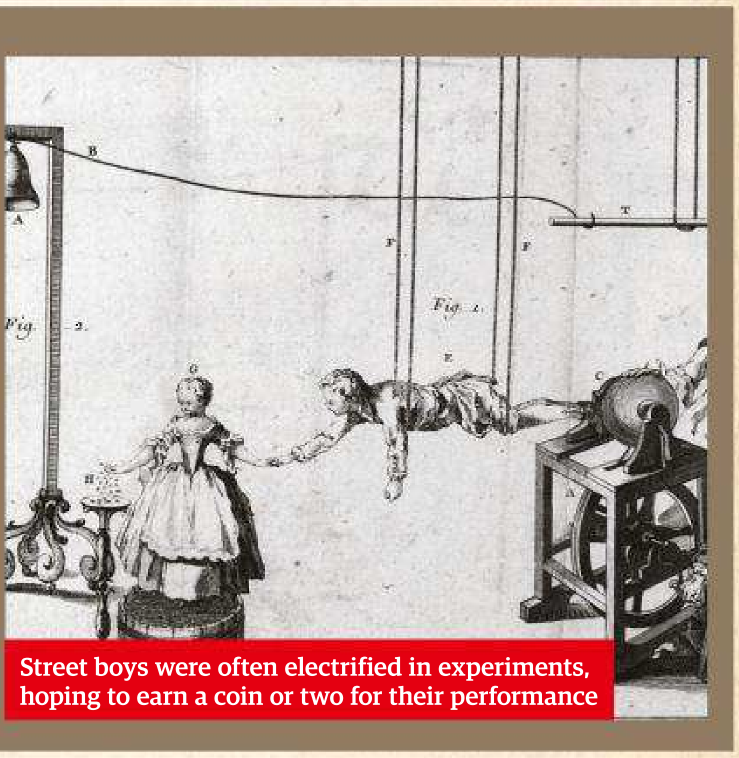
Objects glow and can move without being touched – is it magic or science?

Scientists who demonstrated their craft in public demonstrations always hoped to put on a good show for audiences, and one particular experiment was always guaranteed to wow the crowds – the electrified boy.

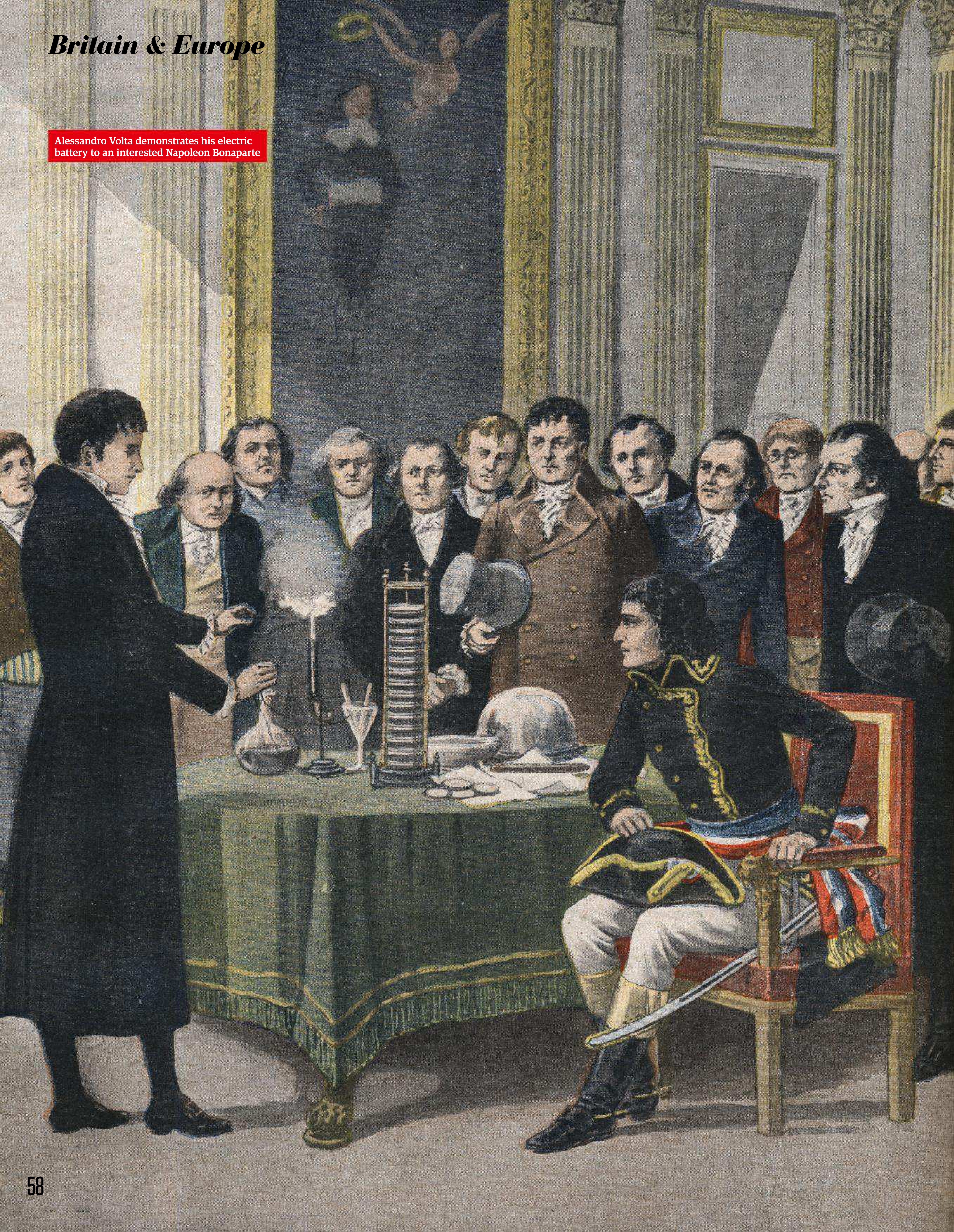
A boy would be suspended from the ceiling with silk cords, away from any conductors of electricity. Then a glass sphere filled with powered sulphur would be placed against his feet. The globe would be turned, picking up a static charge, and electroluminescence would cause the sulphur inside it to glow.

That alone would have impressed the audience, but after sufficient time had passed to allow the static charge to enter the boy, the scientist would hold up a book. The boy, still suspended from the ceiling, would reach out his hand and the nearest page would float up towards it, as though he was turning the page without touching it. If a willing volunteer from the audience stood on insulated ground and held the boy's hand, the charge would pass to the volunteer and they could also turn the pages without touching the book.

At the end came the great finale: the electric kiss. If the volunteer stepped off the insulated ground and approached the boy, the audience would hear a load crack and see a spark come from the young boy. The spectacle was based on research by Stephen Gray, who had discovered that living bodies could conduct electricity.



Street boys were often electrified in experiments, hoping to earn a coin or two for their performance



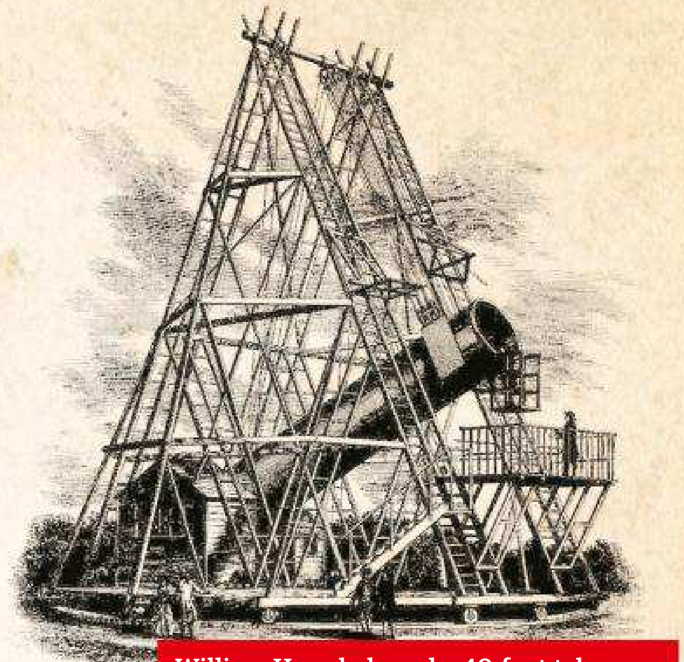
Alessandro Volta demonstrates his electric battery to an interested Napoleon Bonaparte understanding of the properties of objects, with the classical elements of earth, water, air and fire remaining prevalent.

Things began to change when experimenters began to isolate the elements that would later go on to form the periodic table. 21 different elements were discovered in the 18th century, from iron and platinum in 1735 to beryllium and vanadium in 1797. Yet the issue that really started the chemical revolution in earnest was combustion. Previously, scientists thought that objects burned because they contained a flammable substance named phlogiston. However, Antoine Lavoisier put forward a radical new theory based on the newly discovered element of oxygen that, after several years of vigorous debate, displaced phlogiston as the prevailing theory. Lavoisier also helped to organise the new chemical world through a new system of chemical nomenclature and list of elements.

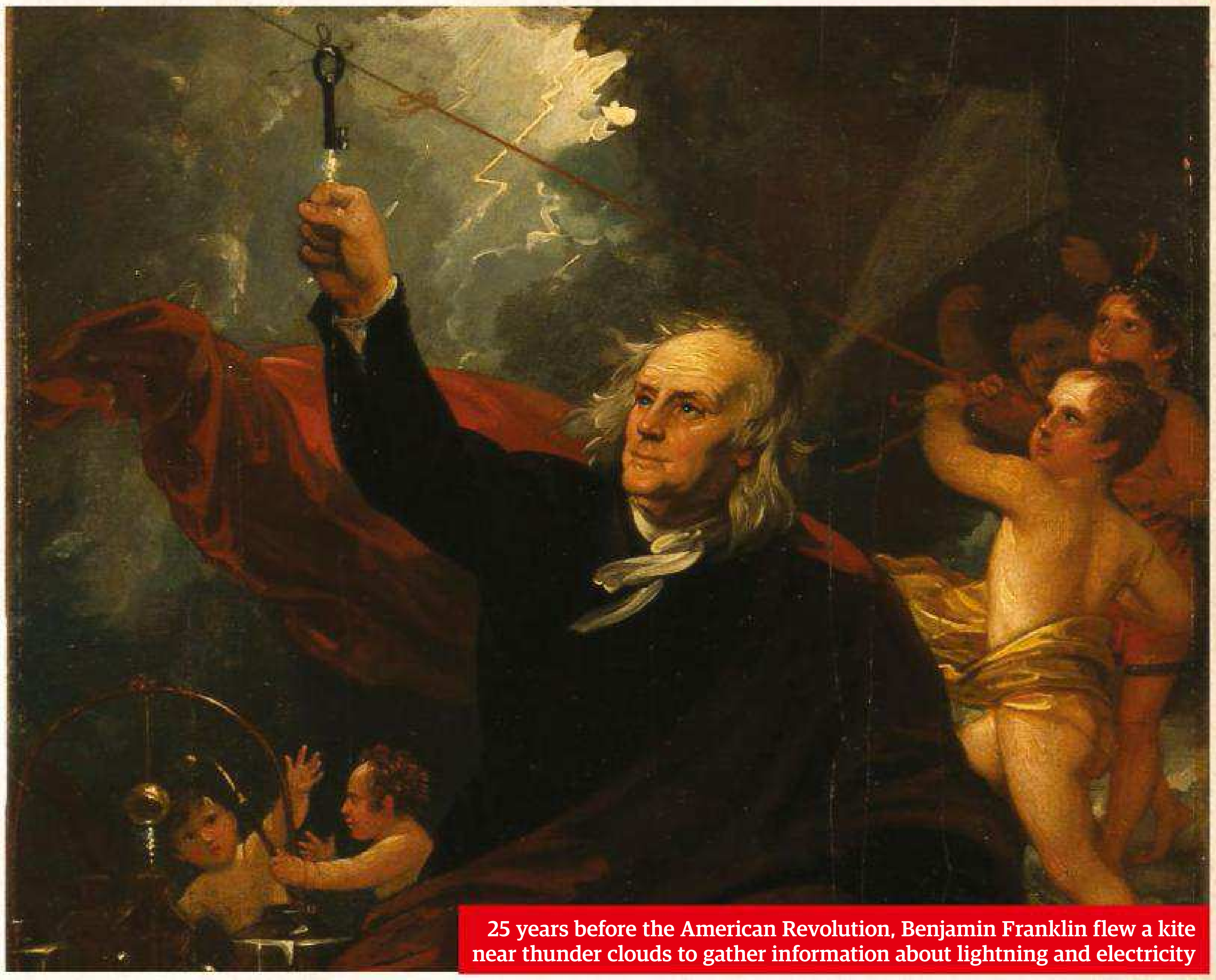
Chemistry had uses beyond the theoretical. Throughout the 18th century, scientists investigated the phenomenon of electrical charges - most famously, American founding father Benjamin Franklin risked his life by flying a kite in a lightning storm as part of an experiment. In 1800, Alessandro Volta unveiled his voltaic pile made from alternating layers of zinc and copper and used it to create an electric flow that was essentially the first battery. The voltaic pile could be used for electrolysis and to decompose chemicals, which in turn led to yet more elemental discoveries, and would be adapted into electric motors within a couple of decades.

> "Things began to change when experimenters began to isolate the elements"

Our understanding of the world was very different at the end of the Age of Enlightenment compared to the beginning. Over 150 years, scientific study evolved from one of natural philosophy being carried out by polymaths to distinct disciplines of biology, chemistry and physics. The chemical revolution began, the solar system was expanded, Newton's laws were surpassed and the natural world could be examined in microscopic detail. The foundations had been laid for even more staggering developments and discoveries like the electrical age, the theory of evolution and black holes.



William Herschel used a 40-foot telescope to discover two new moons around Saturn



25 years before the American Revolution, Benjamin Franklin flew a kite near thunder clouds to gather information about lightning and electricity

Sister scientists

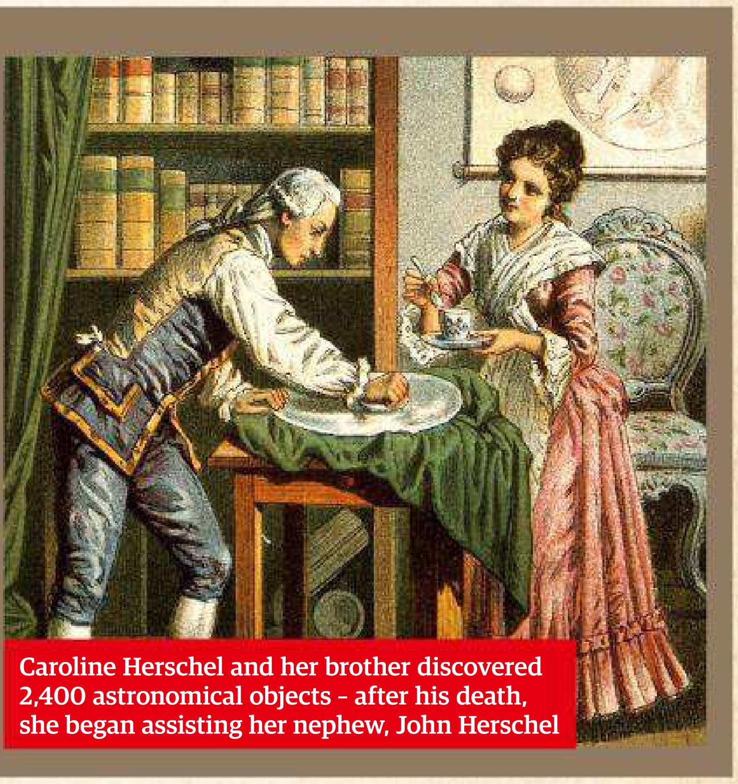
The women who pushed the boundaries of both science and society

Female scientists were rare during the Age of Enlightenment - women were largely excluded from studying at universities, being members of learned societies and working in professions. Yet there were a few who did manage to break through the constraints of society.

The most notable female scientist was Laura Bassi, who not only managed to study at the University of Bologna, but was also appointed a professor of physics there in 1732. Although it was rare that she gave public lectures, she was allowed to teach her main interests - Newtonian physics and electricity - in private lessons.

More commonly, women worked in the background through an association with a male colleague. Perhaps the most famous is Caroline Herschel, who was an initially reluctant assistant to her brother, William. However, Caroline soon discovered a passion for astronomy, joining him in his nightly observations and taking meticulous notes. She is given credit for discovering eight different comets and producing an authoritative star catalogue that corrected many of John Flamsteed's observations.

Another renowned female scientist, Marie-Anne Pierette Paulze, worked alongside her husband, Antoine Lavoisier, assisting him in his laboratory during the experiments that kick-started the chemical revolution. Marie-Anne also translated English scientific papers so her husband could read them and she illustrated many of his publications.



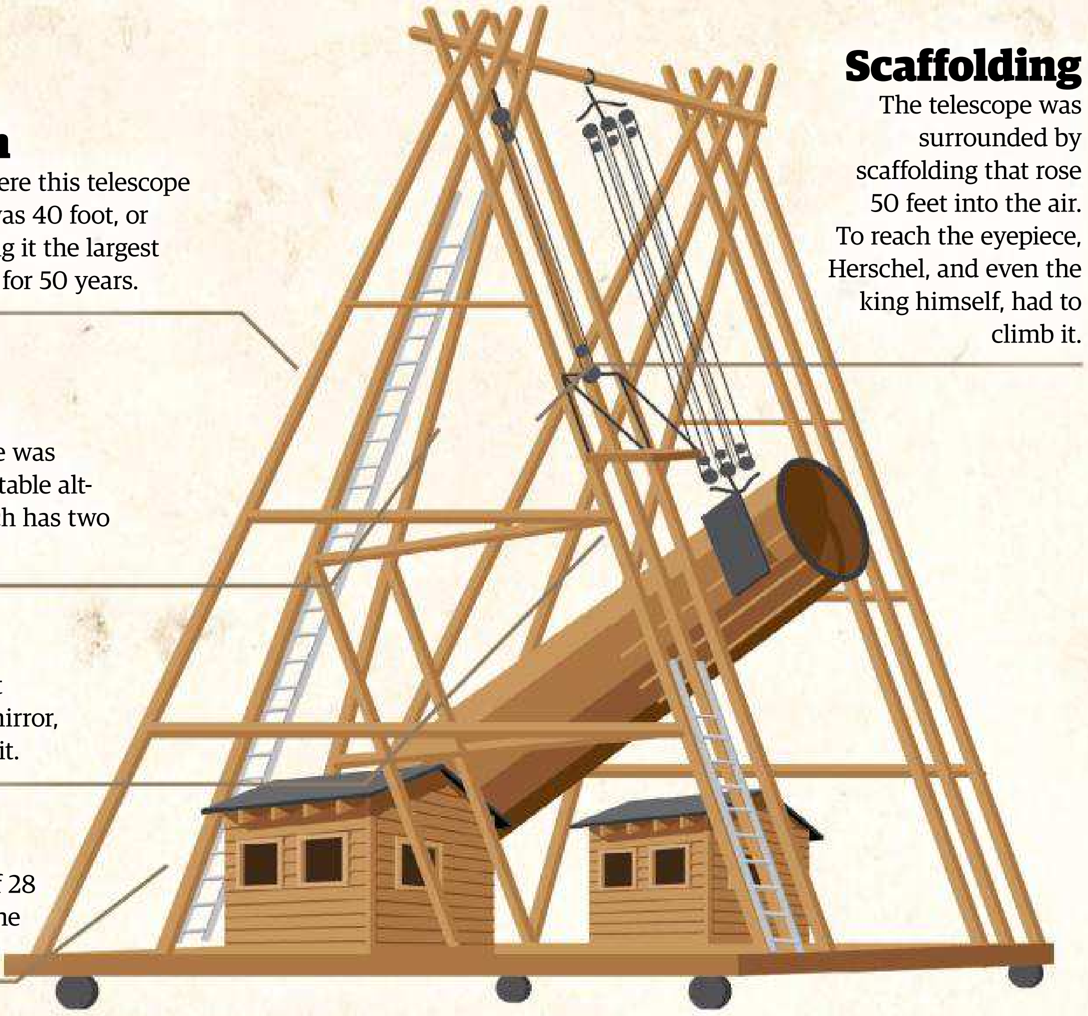
Caroline Herschel and her brother discovered 2,400 astronomical objects - after his death, she began assisting her nephew, John Herschel

How to Discover a Planet

Tirelessly scanning the galaxy to make a monumental discovery

Only two of the planets in our solar system have been officially discovered – Uranus and Neptune (three including Pluto). All the rest have been known since antiquity and can be observed, unaided, by the human eye. When the telescope made its debut in the 17th century, it opened up the sky for an array of curious minds and astronomers to explore the galaxy in a way never before fathomed. Interest in astronomy skyrocketed, and increasingly accurate instruments were created. In the late 18th century, Sir William Herschel gazed upon the planet of Uranus and became the first person in history to officially discover a planet.

Herschel's 40-foot telescope



Scaffolding
The telescope was surrounded by scaffolding that rose 50 feet into the air. To reach the eyepiece, Herschel, and even the king himself, had to climb it.

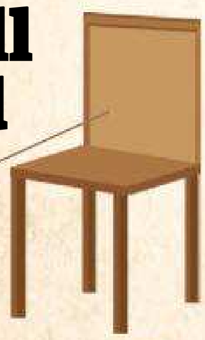
Focal length
The focal length is where this telescope got its name from: it was 40 foot, or 12 metres, long, making it the largest telescope in the world for 50 years.

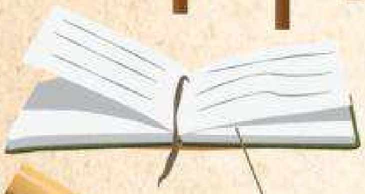
Mount
The body of this huge, cumbersome telescope was fixed on to a fully rotatable alt-azimuth mount – which has two perpendicular axes.

Mirrors
The telescope featured a 48-inch diameter mirror. Most telescopes of the era featured another small diagonal mirror, but these had poor reflectivity, so Herschel eliminated it.

Discoveries
When Herschel first used this telescope on the night of 28 August 1789, he discovered a new moon of Saturn; in the same month another moon was discovered.

What you'll need

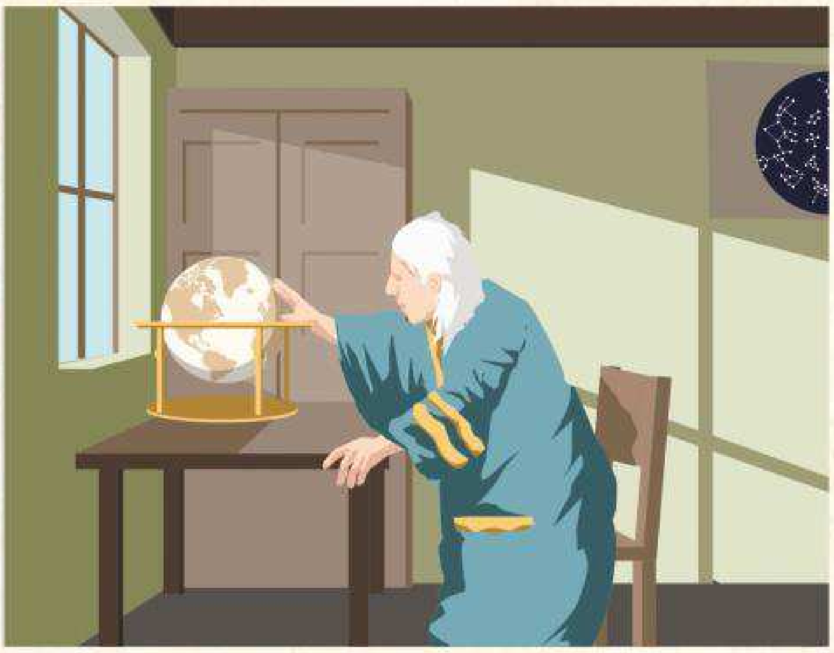

Chair


Journal

Telescope

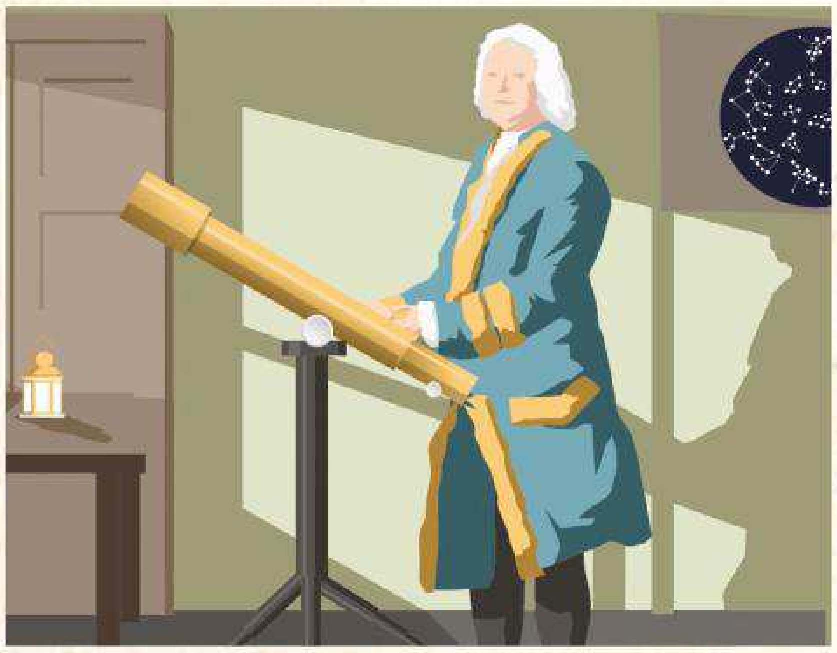
Star charts

Lantern



01 Study hard

Astronomy in the 18th century is a complex art that has to be studied – you can't just point a telescope at the sky and hope. No amateur has ever discovered a planet, so be sure to swot up on everything about space. As astronomy is a rapidly developing science, it's also important to keep up with the finest minds in the business.



02 Build your telescope

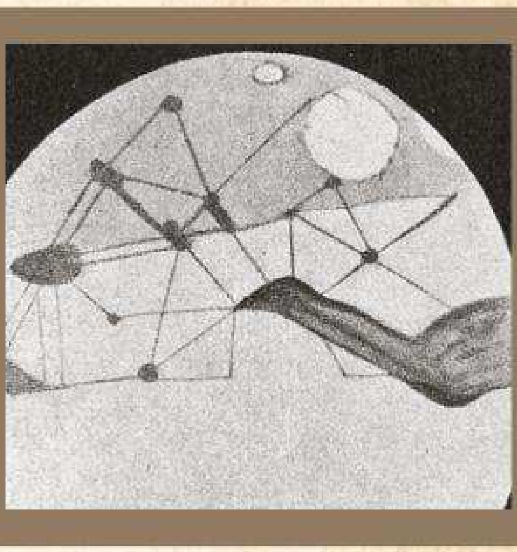
Although gaining popularity, astronomy is still a flourishing art and shops don't stock telescopes. So, you're going to have to either befriend the right people and borrow theirs or build your own. Herschel constructed more than 400 telescopes during his career, and many of these were made in his own home.

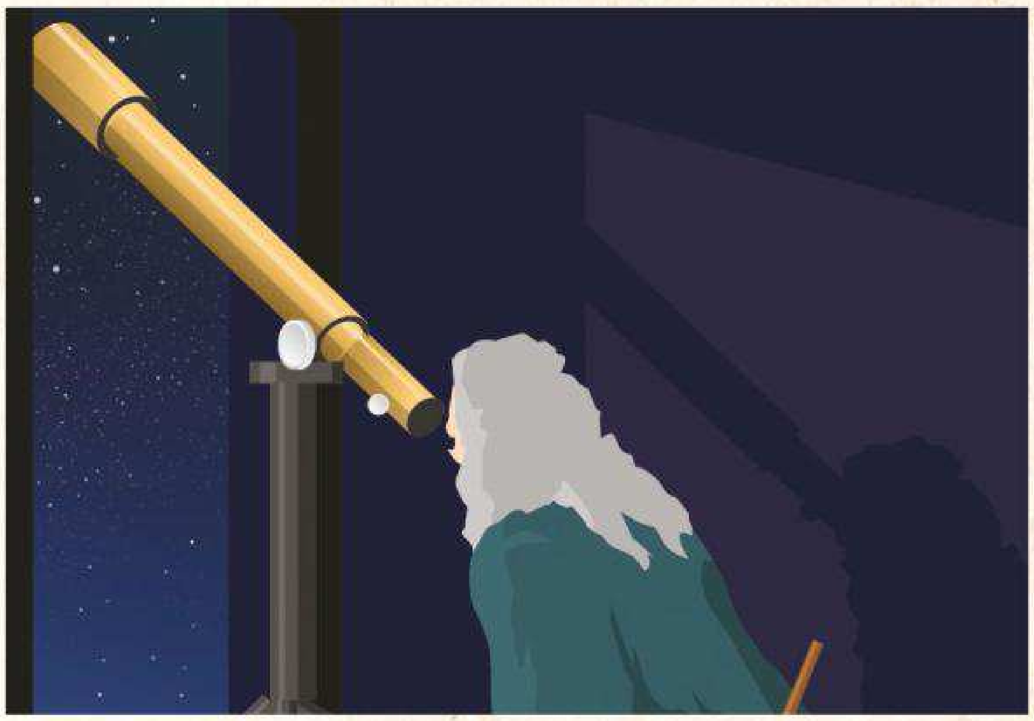
Is there life out there?

Several 18th and 19th-century astronomers, who are otherwise acclaimed in their field, have attracted some criticism today because of their claims and beliefs about extra-terrestrial life. The same William Herschel who discovered Uranus and was celebrated as a genius believed that alien life inhabited basically every planet and object in the universe, including stars.

He claimed to have found evidence that life survived on the Moon and described it as similar to the English countryside. He even claimed that beings were inhabiting the Sun, explaining: "Its similarity to the other globes of the solar system… leads us to suppose that it is most probably inhabited… by beings whose organs are adapted to the peculiar circumstances of that vast globe."

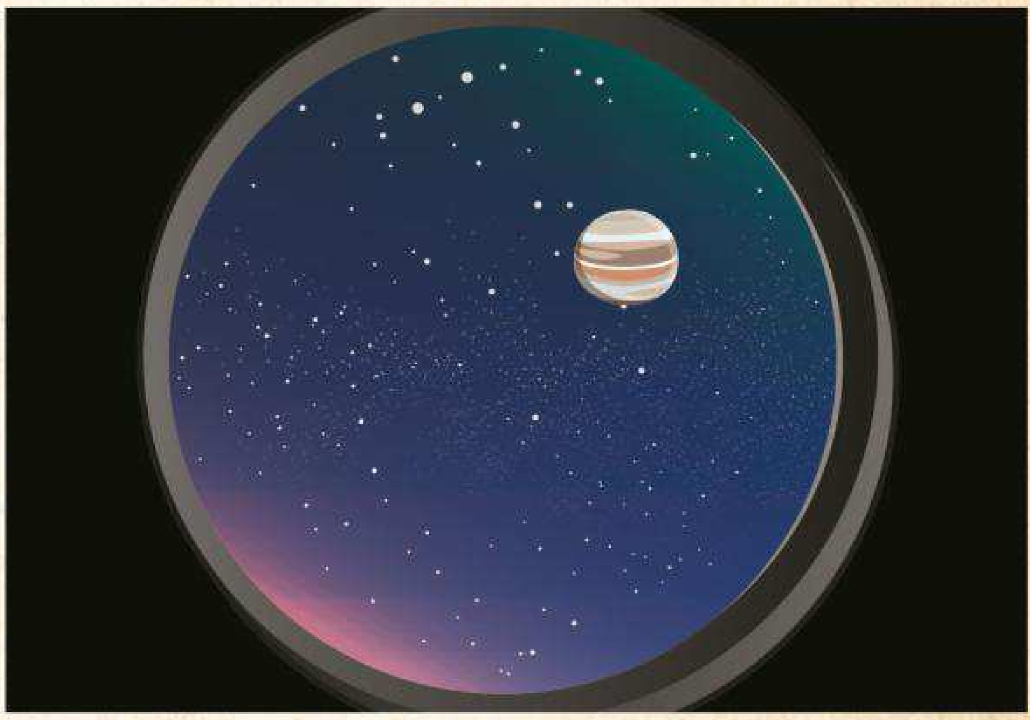
He wasn't the only one – Percival Lowell, an early 20th-century astronomer, dedicated years of his life to creating intricate drawings of what he called the "canals of Mars". He believed that these surface markings were wells dug by intelligent species living on the planet.





03 Search the galaxy

When Herschel discovered Uranus, he wasn't looking for a planet – he was studying the stars. Spend some time studying the ways in which stars behave. The more familiar you get with how objects act, the more something unusual will stand out. It is also key to take lots of notes and start a detailed scientific journal.



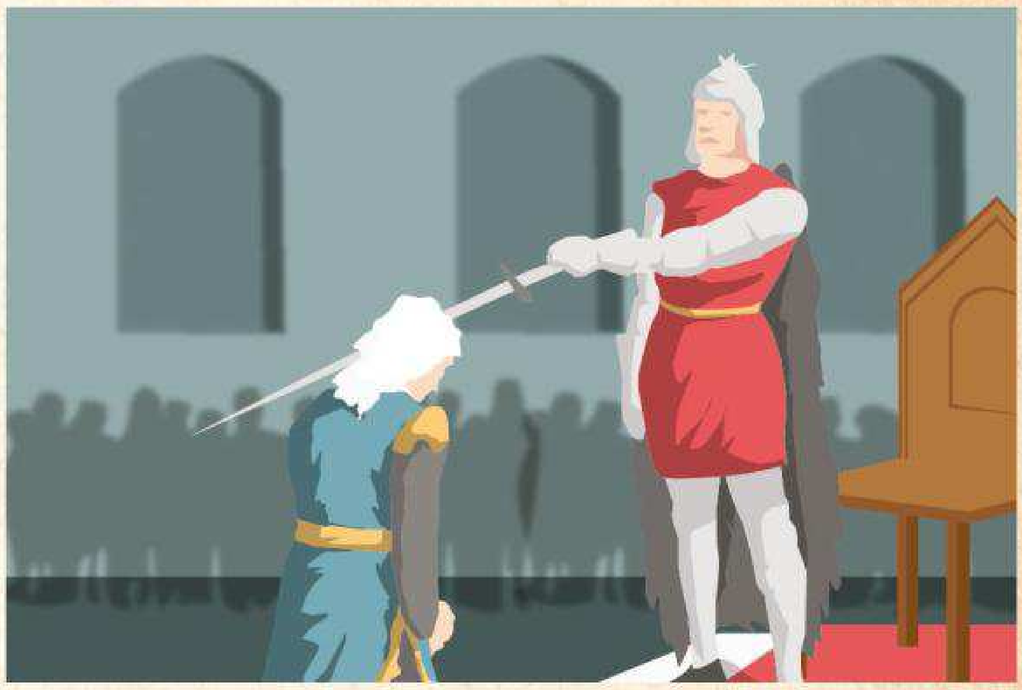
04 Strike lucky

With an 18th-century telescope, you won't easily be able to spot a planet. In fact, it will likely look identical to the many stars you see – a fuzzy blob. It may take months, or even years, but hopefully you'll strike lucky and discover a new planet. Herschel studied Uranus many times before concluding it was a planet.

Hello
my name is

05 Give it a name

As the discoverer, you have the honour of naming the planet – which can be tricky. Herschel originally named Uranus 'Georgium Sidus', or 'George's star', after King George III, but this did not go down well in France. It was then known as 'Herschel' for several years until finally the name Uranus, with roots in Greek and Roman mythology, stuck.



06 Enjoy your fame

A discovery such as this is monumental and you'll be the subject of much praise. If your experience is anything like Herschel's, you'll be an overnight sensation, made court astronomer and even knighted. Of course, all eyes are now on you for more amazing discoveries, so you better dust off that telescope and settle down for a few more years.

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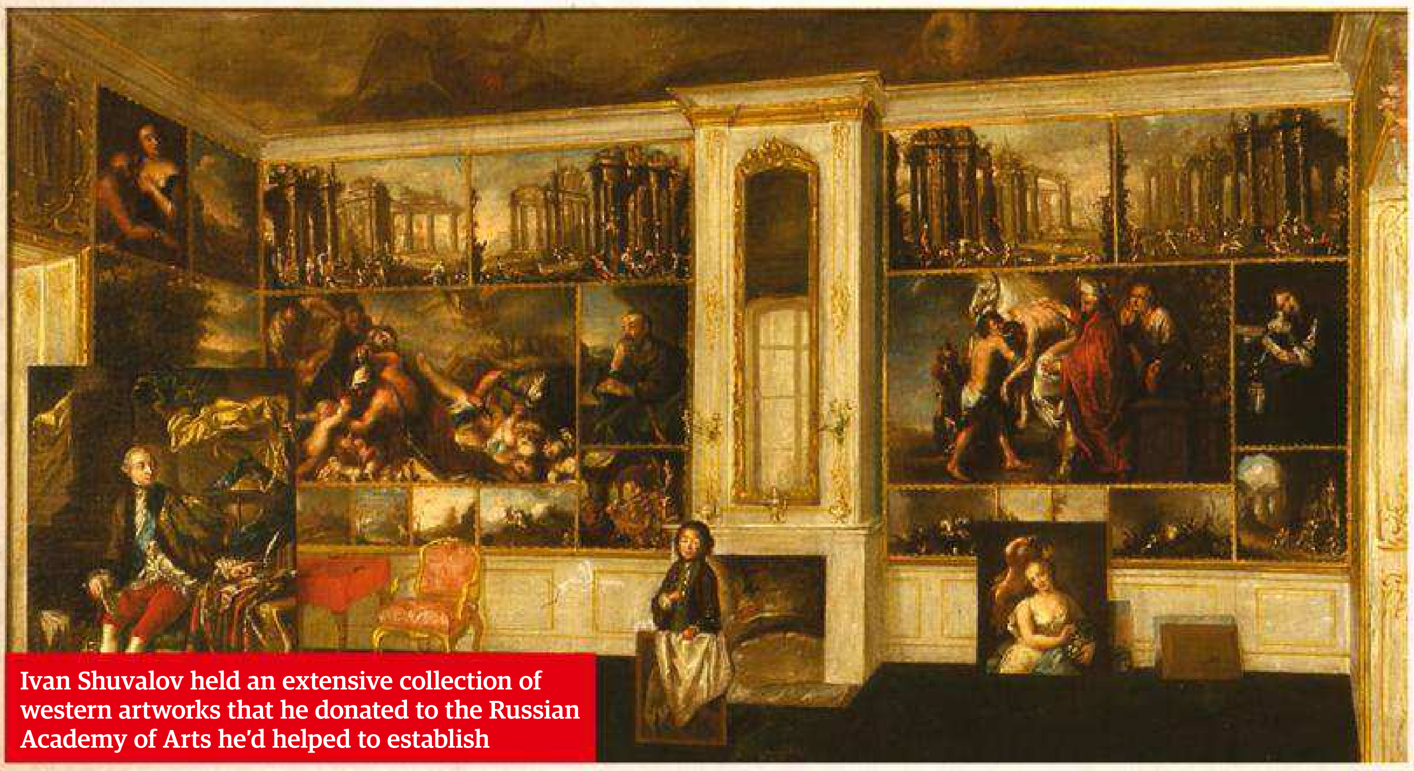
The Russian Enlightenment

Seen by many as a backwards nation, several of Russia's rulers made great efforts to modernise the huge nation – technologically, at least

Russian Enlightenment, as noted by Dr Andrew Kahn, has often been viewed from the top down – an enlightened autocracy that drove through changes. Enlightenment was just one part of a bigger, wider-reaching movement in Russia towards westernisation, as successive rulers in the 17th and 18th centuries sought to move away from traditional, inward-looking Slavophile policies and towards the advancing European nations. In particular, the Russians looked to the Netherlands, France, England and also Sweden, which was locked in war with Russia from 1700 to 1721 and served as a major catalyst for technological and military advancement in Russia.

Under Peter I, Russia was put on a course of Western European thinking when the unconventional ruler sought to model his state on the Netherlands and England after he visited them both during his 'Grand Embassy', and he became enamoured with their naval power and advancement. While he employed Westerners to come to Russia and establish modern industry and factories, perhaps Peter's greatest progressive act was in establishing secular education open to the burgeoning bourgeoisie and soldier classes. He established the Russian Academy of Sciences in 1724, creating Russia's first major centre of learning outside the control of the Church.

Reforms were made to many other parts of Russian life: its calendar was brought in line with Europe's, and a more European model was pushed upon elite society. Peter I even banned beards, and would personally shear the face of any noble who flouted this order. The Table of Ranks, introduced in 1721, also created a system whereby members of the bourgeoisie could rise to prominent positions.



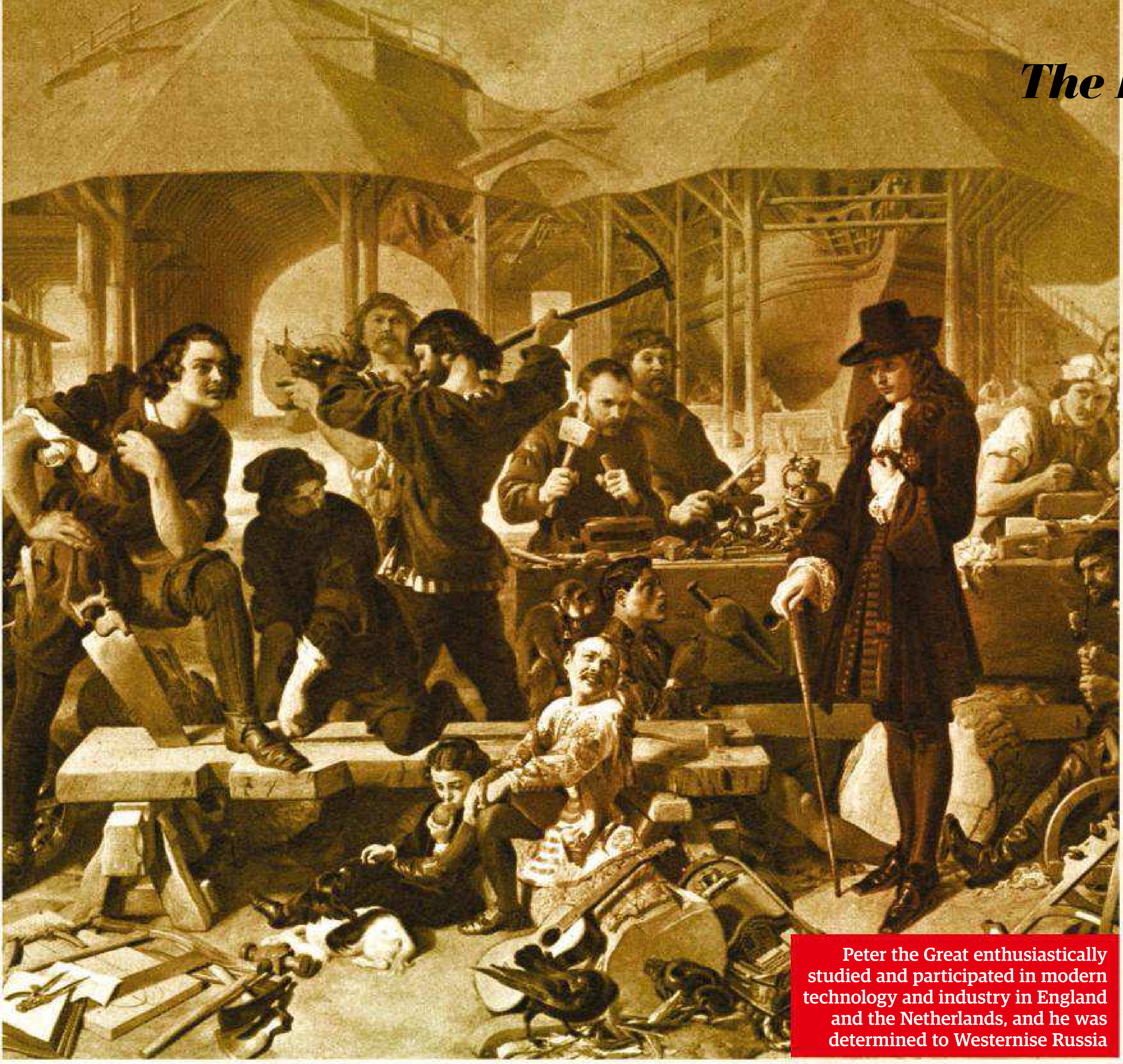
Ivan Shuvalov held an extensive collection of western artworks that he donated to the Russian Academy of Arts he'd helped to establish

However, these movements were used to achieve practical solutions to problems in Russia – usually military and economic – and weren't concerned with furthering the human condition. Historian Andrzej Waliki commented, "The prominent leaders of the first half of the 18th century looked at the Enlightenment 'from the point of view of its immediate practical benefits'. It did not occur to them that the political and social system might require thorough reform."

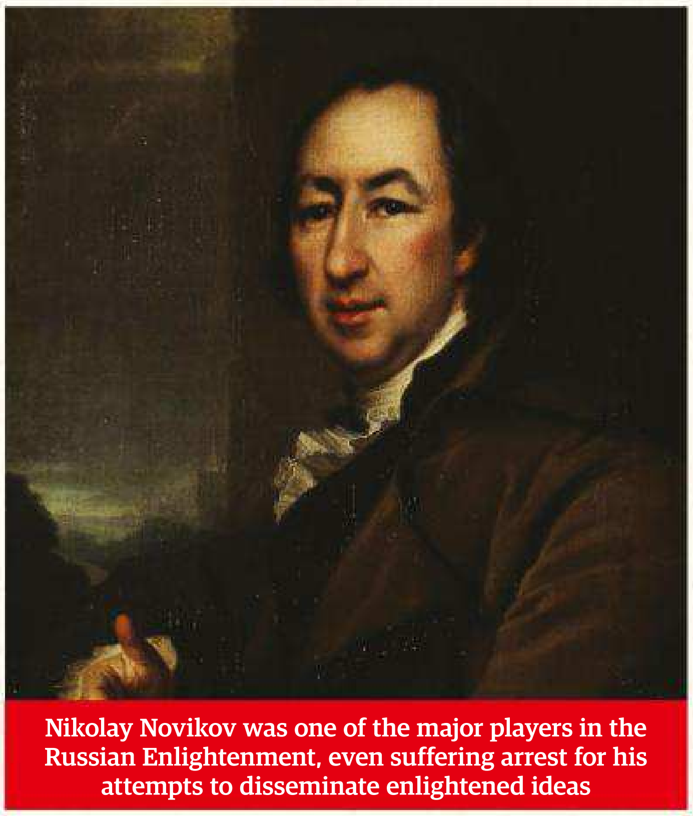
The groundwork, nevertheless, had been laid in Russia for Enlightenment thinking by encouraging the bourgeoisie and secular learning. This Westernisation policy was by and large adhered to by Peter's successors Elizabeth I and, more famously, Catherine II, who went to great efforts to portray herself as a great enlightened despot, even befriending philosophes like Voltaire.

However, Enlightenment thinking in Russia was not exclusively the result of top-down initiatives from Russian rulers. During Elizabeth's reign, the University of Moscow was established by Mikhail Lomonosov, a polymath and poet, and Count Ivan Shuvalov, a significant instigator of learning, who also helped establish the Russian Academy of Arts in 1757, having been inspired by learning centres elsewhere in Europe. Lomonosov is often considered one of the foremost Russian thinkers of the period. Having been educated in Russia and later the German states, he became a prominent figure, particularly in the study of natural science, as well as astronomy.

Another revered individual was Nikolay Novikov, a Moscow-born journalist who managed the Moscow University Press and introduced literate Russians to the works of European thinkers. However, his satirical and occasionally critical publications got him arrested in 1792 on the orders of Catherine II.



Peter the Great enthusiastically studied and participated in modern technology and industry in England and the Netherlands, and he was determined to Westernise Russia



Nikolay Novikov was one of the major players in the Russian Enlightenment, even suffering arrest for his attempts to disseminate enlightened ideas

As mooted by Dr Andrew Kahn, the presence and activity of a nation's publishing industry is an effective litmus test for an enlightened state. In 1725, he noted, the Russian state published just ten titles, and in 1736 produced 17 - three of which were about fireworks and one a calendar. However, in 1760, Moscow University Press alone was printing 40 new titles a year and had 11 printing presses in operation.

The press, as shown by the case of Novikov, was still not free, and it faced censorship by the government and Holy Synod, Russia's religious authority. Dmitry Anichkov's *Discourse* was banned and even publicly burned by the Synod after he "stressed that the material interests of the priests and theocratic rulers forced upon them a policy of conscious duplicity," according to Walicki.

Semyon Desnitsky, according to Walicki, was "probably the most outstanding and perhaps also the most original Enlightenment thinker of his generation". While he is known for bringing the Scottish Enlightenment's ideas to Russia, he also disseminated his own critical ideas about theology, but was compelled to make an exception for Christianity in order to circumvent Synod disapproval. He was the first to deliver lectures in Russian instead of Latin, helping to bring learning to a wider Russian audience than ever before.

Nevertheless, it could be argued that Russia was saddled with the policy of Westernisation, and as such was more focused on adopting and adapting the ideas of European nations. Russian rulers moved to utilise European advancements to gain rapid practical benefits, and Russia often picked practical Enlightenment ideas and adapted them to Russia's religious and social framework.

The top-down encouragement of Russian Enlightenment did not long survive the French Revolution, as the execution of Louis XVI shocked and terrified Catherine II and she moved towards a more conservative approach. Enlightened thinking had also been widely opposed by the nobility, and the French Revolution only served to compound this view.

Ultimately, the Enlightenment in Russia touched very little of the population - almost certainly a smaller percentage than in France, Britain and elsewhere - and the conditions for the majority of the Russian people wasn't really much improved.

Diderot in Russia

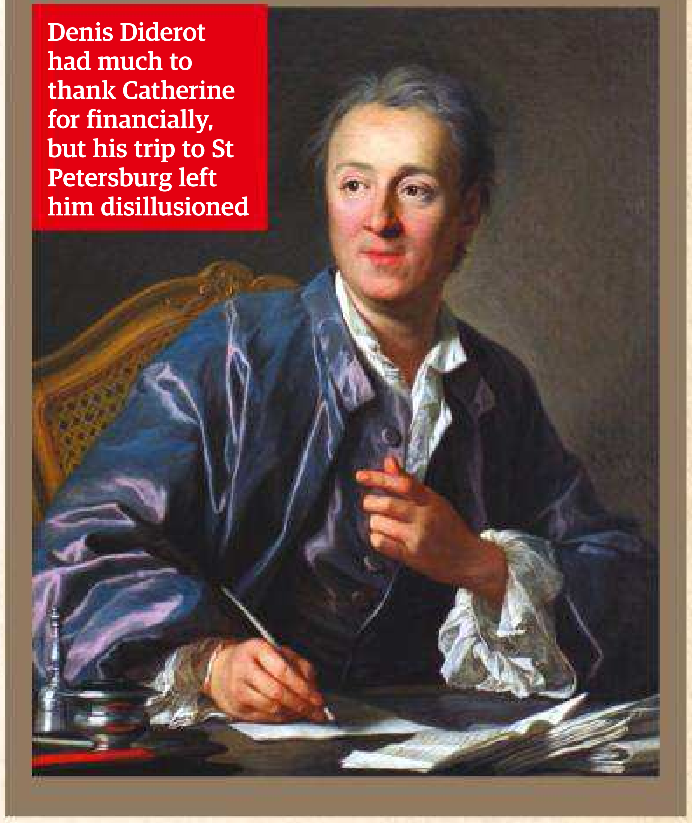
The famed French philosophe travelled to Russia at Catherine's behest, but was left unimpressed after the empress' grand words

Catherine II was eager to be considered an enlightened despot, and she used generous patronage to develop relationships with the most prominent philosophes in France, among them Voltaire and Diderot. Impressed by the apparent difference in attitude between the Russian ruler and their own persecuting French leader, the philosophes were full of nothing but praise: "What do you say of the empress of Russia? What times we live in! France persecutes the philosophes, and the Scythians show them favour!" Voltaire wrote to Diderot.

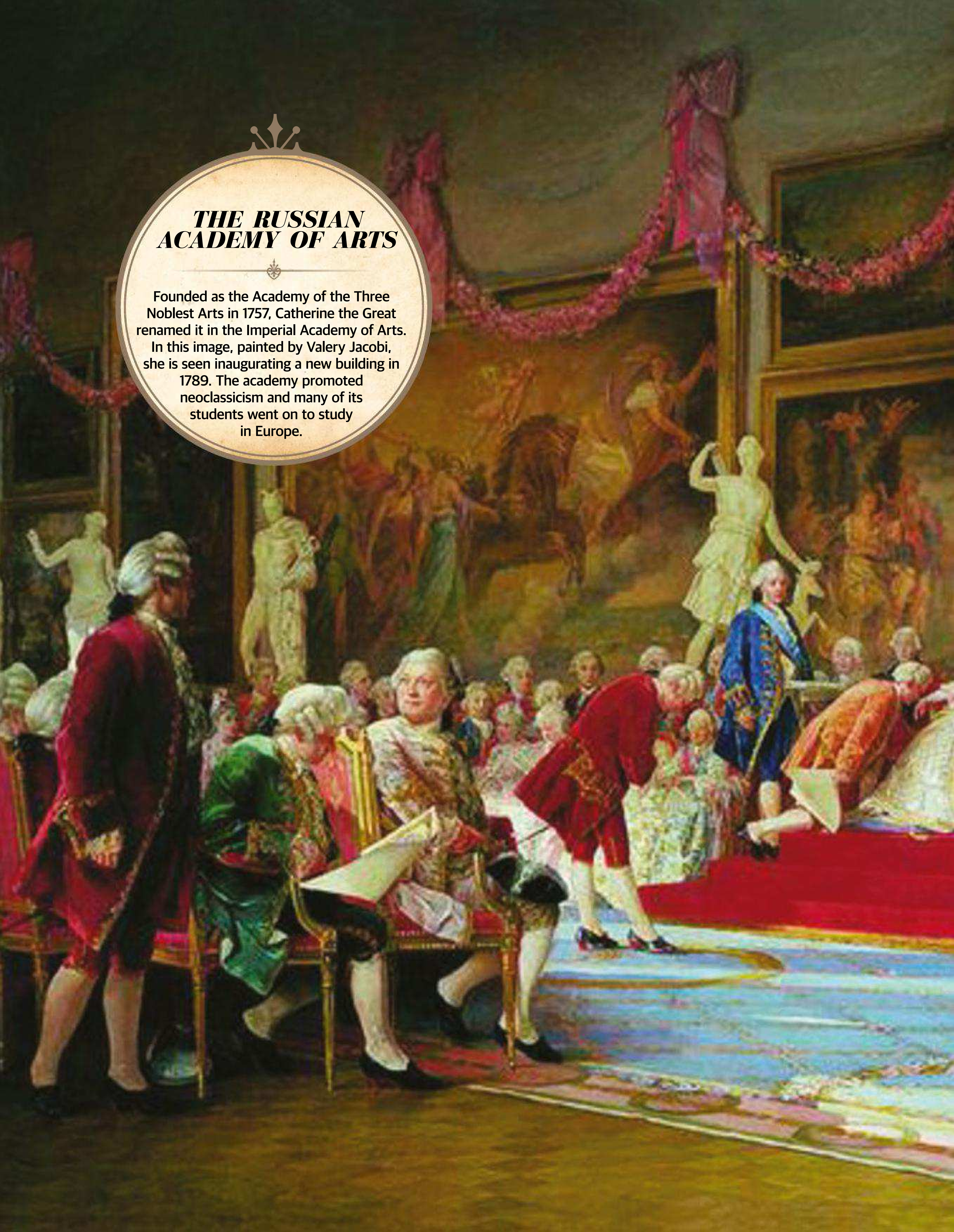
Empress Catherine was particularly generous to Diderot and bought many of his works in order to ease his financial worries. Somewhat in her debt, the aging Diderot visited Saint Petersburg to meet Catherine in 1773. Despite the empress' frequent extolling of her belief in Enlightenment thinking and being a "pupil" to the philosophes, Diderot was less than impressed with what he found in Russia. He found "a long tradition of repression", which "has resulted in a general atmosphere of reticence and distrust, a recollection of terror in the mind, as it were, that is in complete contrast to the noble openness characteristic of the free and self-confident mentality of the Frenchman or Englishman."

He went on: "Individual freedom is reduced to zero here, the authority of one's superiors is still too great and the natural rights of man are as yet too restricted." Clearly he was thoroughly disillusioned with the idea of an enlightened autocrat as a successful method of ruling.

Catherine, probably just as disillusioned as Diderot, retorted, "You, as a philosopher, work on paper, which will bear everything; whereas I, poor empress, work on skin, which is far more sensitive."

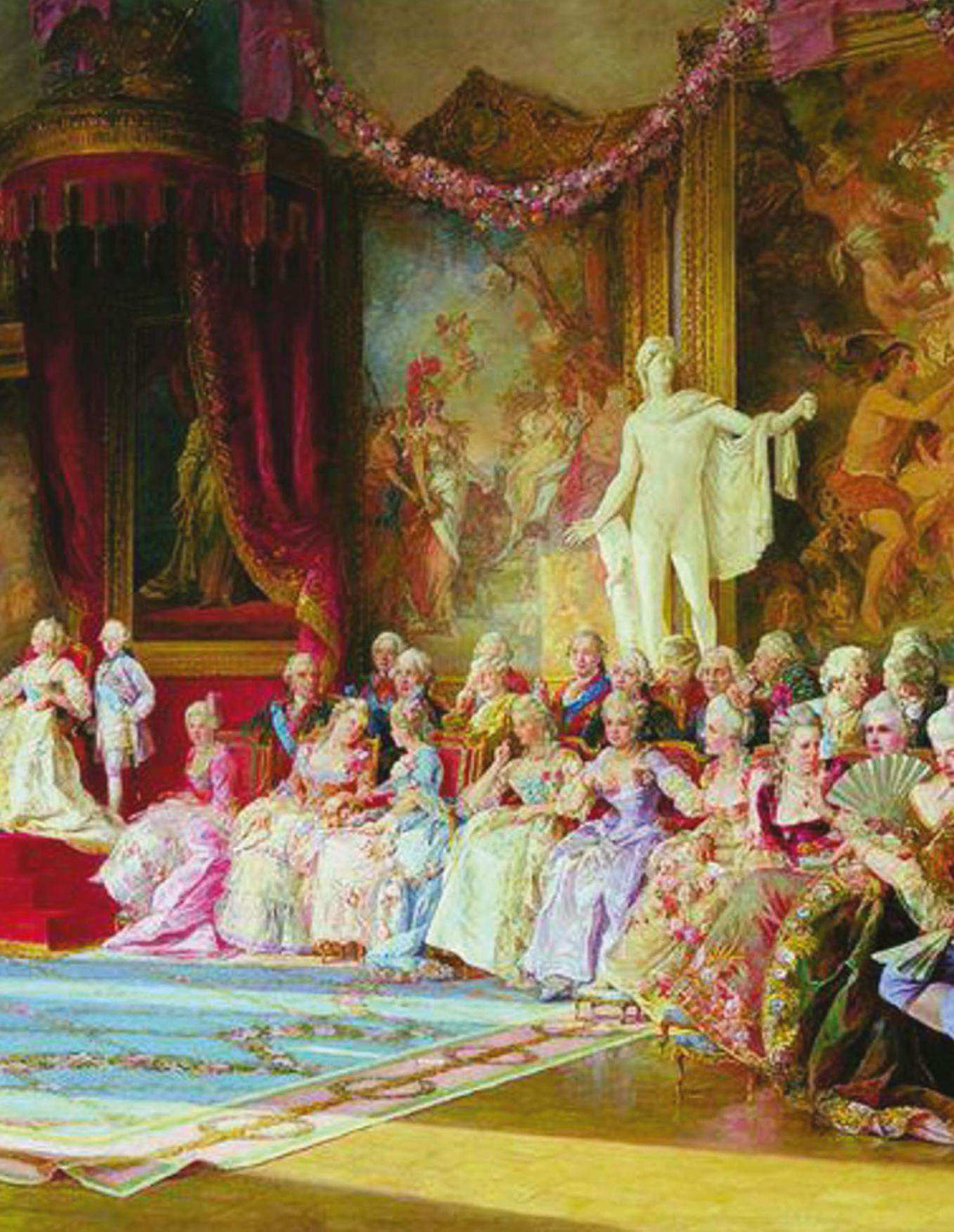


Denis Diderot had much to thank Catherine for financially, but his trip to St Petersburg left him disillusioned



THE RUSSIAN ACADEMY OF ARTS

Founded as the Academy of the Three Noblest Arts in 1757, Catherine the Great renamed it in the Imperial Academy of Arts. In this image, painted by Valery Jacobi, she is seen inaugurating a new building in 1789. The academy promoted neoclassicism and many of its students went on to study in Europe.



The German Enlightenment

During the 18th century, the Aufklärung gave the German states a fresh outlook that would change far more than thought and culture

Words by June Woolerton

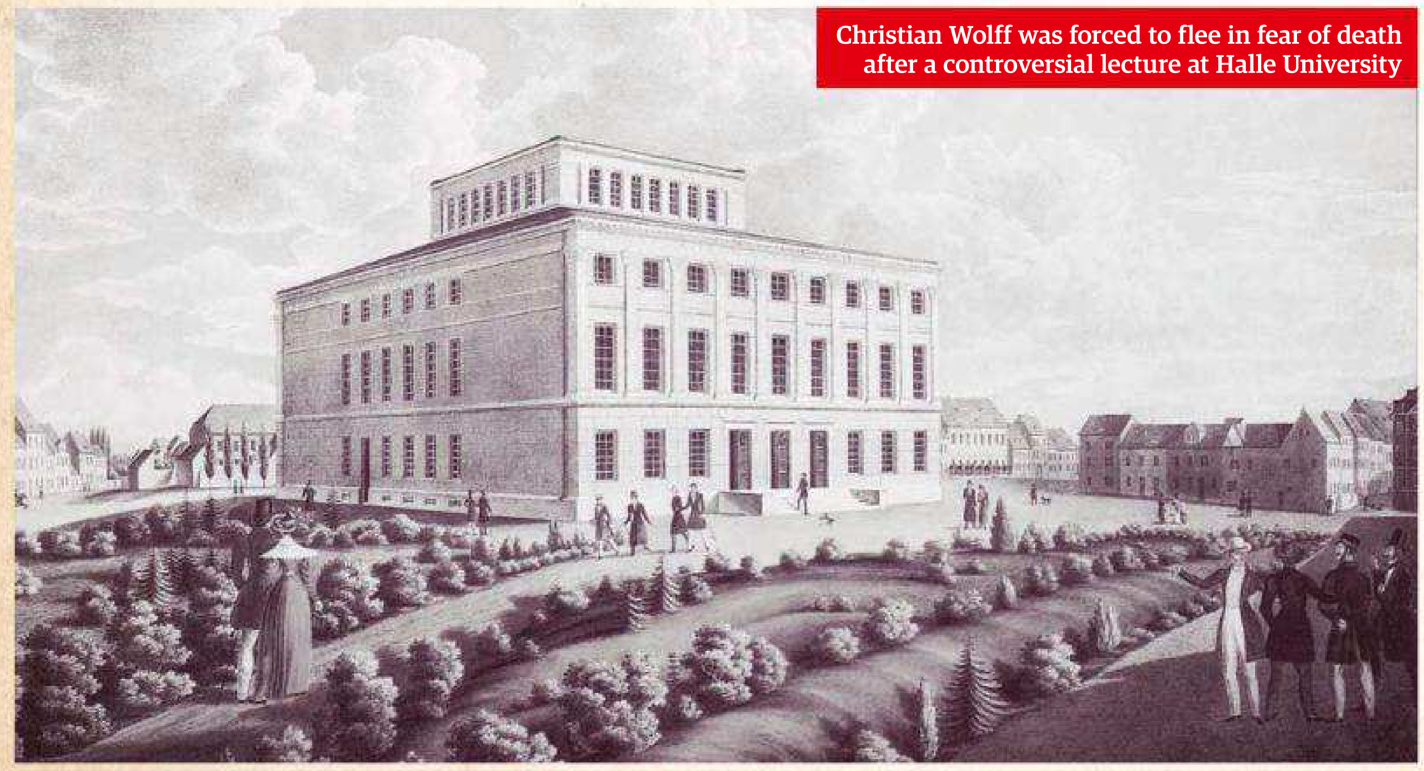
From the moment Christian Thomasius urged intellectuals to speak in German not Latin until the time that Immanuel Kant's *Critique of Pure Reason* laid down a new philosophical challenge, the German Enlightenment had a radical effect on thought, culture and language in the disparate states across the region. And ultimately, the changes it brought would be so profound that they formed part of the path to the unification that took place a century later.

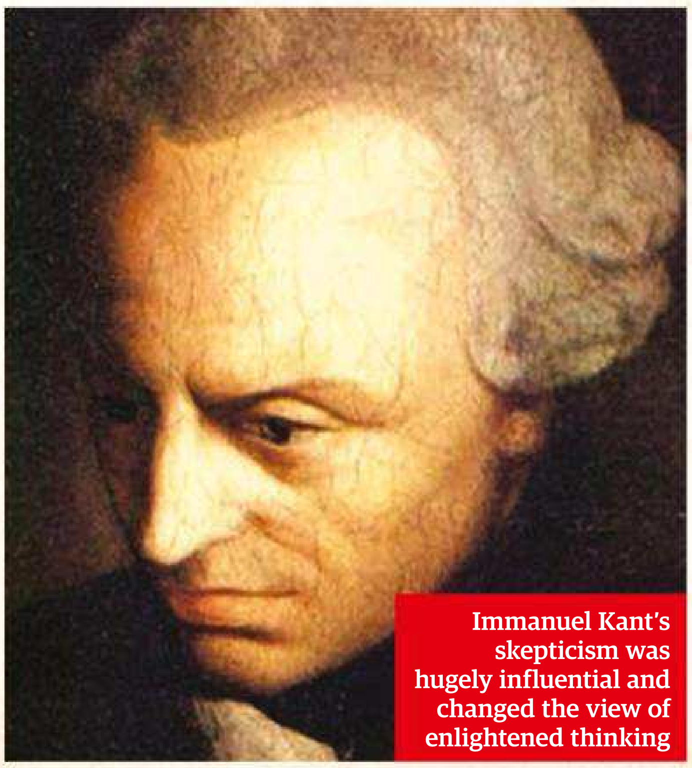
The German Enlightenment took place in strikingly different circumstances compared to other parts of Europe. Whereas France and England had governments that held sway across the nations as a whole, Germany was in reality a collection of territories with different leaders. The language of academics, courts and newspapers was Latin, while German - and its associated literature - was regarded as second class. The ruling classes aspired to meet the standards of their French neighbours in art, building and culture.

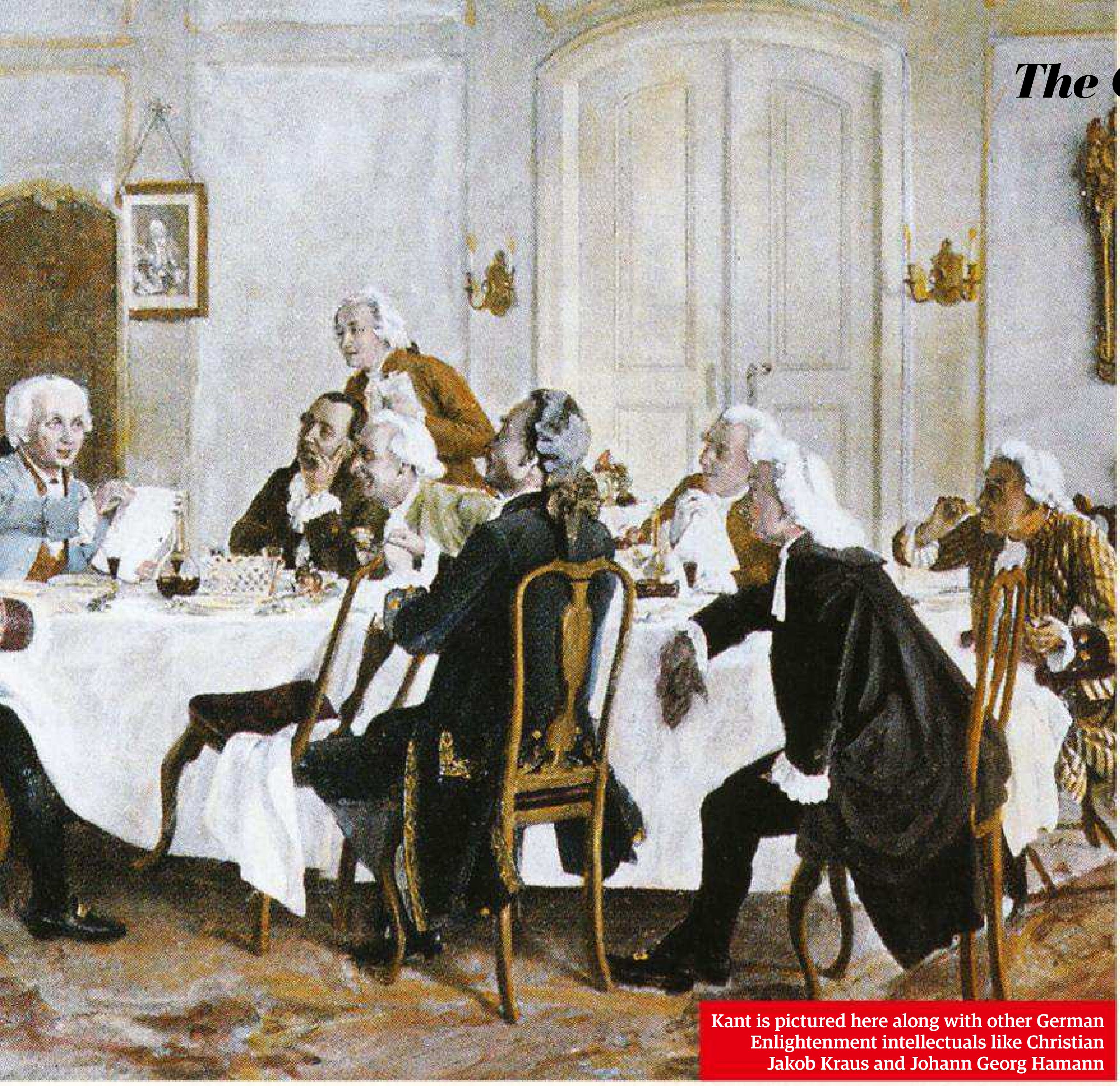
It was a call to be more like the French in other ways that signalled the arrival of the German Enlightenment. In 1687, Christian Thomasius, a professor at Leipzig University, gave a lecture urging his fellow teachers to copy their neighbours and use their own language, rather than Latin, when teaching. Thomasius started a monthly pamphlet espousing radical ideas and when he gave his support to the intermarriage of Lutherans and Calvinists, he was threatened with arrest and fled to Halle, where he found work at the university. It allowed him to bring his ideas to another area and this pattern of movement would be vital to the spread of the Aufklärung, as the Enlightenment came to be known across German lands.

Perhaps because of the different circumstances in which it arose, the Aufklärung took a different form, too. Instrumental in that was Gottfried Wilhelm von Leibniz, whose deep and unshakeable religious beliefs led him to view the universe as the work of a perfect God. His theory, that everything in it was made up of monads that can't be seen but which allow humans to perceive each other and the world in which they live, had a religious quality that would lead to mysticism playing a greater part in the Aufklärung than other enlightenments.

Soon after Leibniz's thoughts began to circulate, Christian Wolff theorised that moral truth could be found through human reason alone. Deeply interested in using science to explain theological beliefs, he drew huge crowds to his lessons, but when he angered his employers at Halle University in 1723, he had to flee the state on pain of death. He took his teachings to other German states, including Hesse-Kassel, where students again flocked to his lectures following his instalment at


Christian Wolff was forced to flee in fear of death after a controversial lecture at Halle University


Immanuel Kant's skepticism was hugely influential and changed the view of enlightened thinking



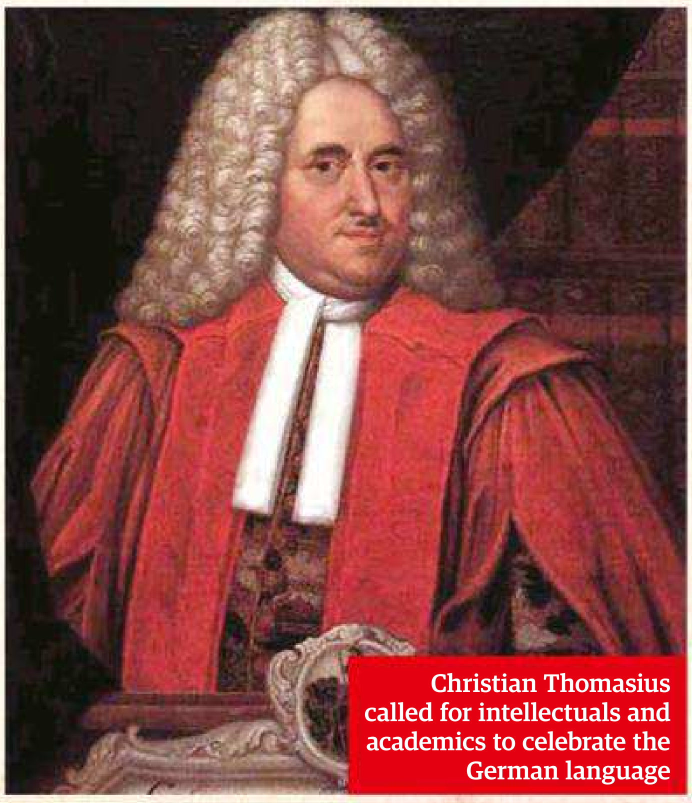
Kant is pictured here along with other German Enlightenment intellectuals like Christian Jakob Kraus and Johann Georg Hamann

Marburg University. Wolff would also travel widely throughout Europe, sharing ideas and bring back new ways of thinking.

As ideas began to be shared across the continent, the impact of Enlightenment thinking was seen on German literature. Johann Wolfgang von Goethe had trained in law but developed a passion for literature that was bolstered by his meetings with Johann Gottfried Herder, who encouraged him to celebrate traditional German poetry. Goethe was also influenced by French philosophers, including Rousseau, who argued emotion was at the heart of all knowledge. His 1774 novel *The Sorrows of Young Werther* caused a sensation upon its publication and turned him into a celebrity, giving him a platform across the continent. He became a central figure in the Sturm und Drang phase of German literature that dominated as the Enlightenment came to a close.

The radical thoughts that had given way to the Aufklärung were now coming under challenge themselves. In 1781, Immanuel Kant published *The Critique of Pure Reason,* which examined, with radical consequences, the relationship between perception and reality. Some of the most famous Enlightenment theories had argued that people can work out the laws of nature through thought. Kant claimed that the human mind actually created the human experience. His transcendental idealism was intended to close the gap between rationalism and empiricism but it also signalled, in some ways, the end of traditional Enlightenment thinking. His 1784 essay *What is the Aufklärung?* gave the German Enlightenment its lasting name, but by then his skepticism and challenge to empiricism was leading philosophers across the continent to a new range of ideas.

However, the impact of the Aufklärung was still unfolding in the German states. The increased emphasis on German language and literature and the growth of a musical tradition that was beginning to influence arts across Europe helped to partly forge a sense of national identity that would ultimately find its expression in unification in 1871. The Aufklärung shone a spotlight on new ways of thinking but made a greater sense of identity much clearer, too.



Christian Thomasius called for intellectuals and academics to celebrate the German language

Sturm und Drang

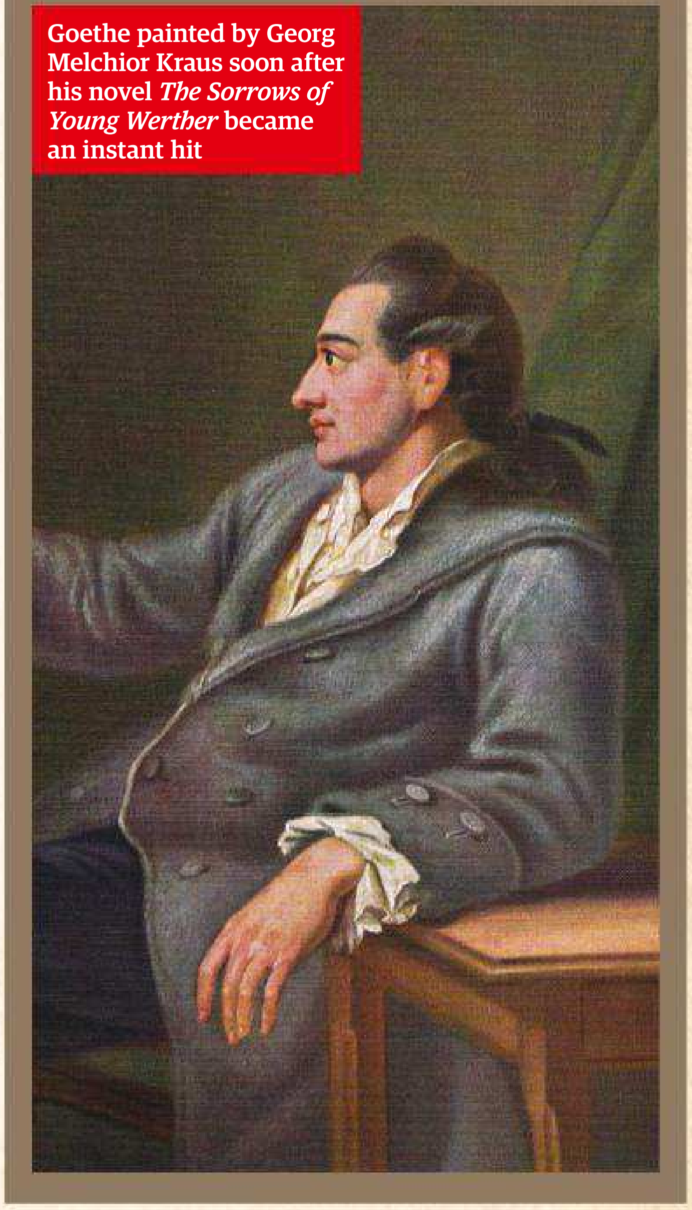
Dramatic and brief, this artistic phase saw extreme emotion dominate German culture

At a time when emotion was beginning to dominate the arts, the German Sturm und Drang era was among the most dramatic movements. Meaning 'Storm and Stress' or 'Storm and Urge', it encompassed literature and music, and it aimed to shock.

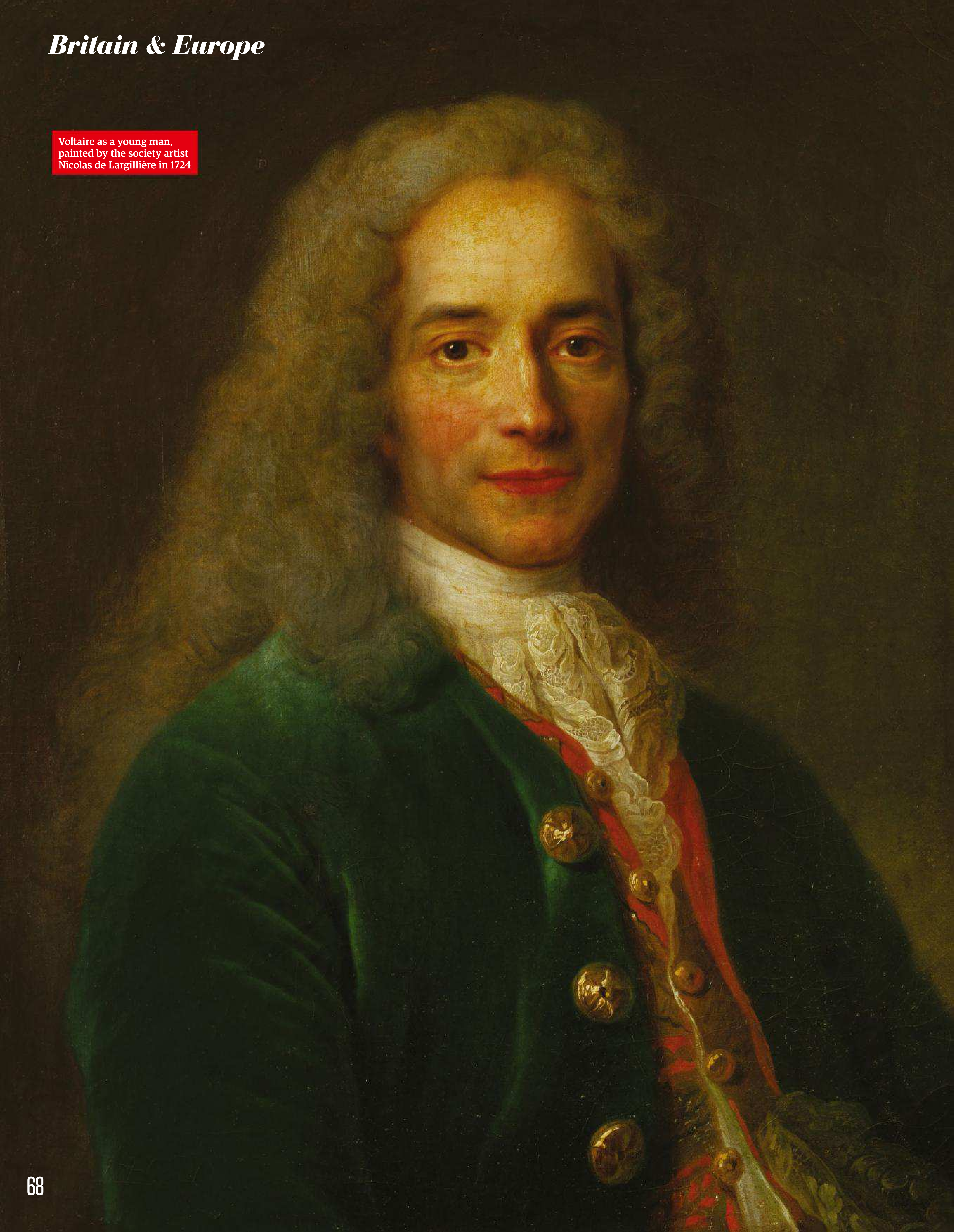
Its proponents argued that rationalism and empiricism weren't enough to explain the human condition. For them, reality could only be exposed through the expression of extreme emotions. Sturm und Drang often features protagonists with serious problems that they solve in angry and violent ways.

The most famous work remains Goethe's *The Sorrows of Young Werther*, a novel told in letter form and which ends in tragedy. Werther falls in love with Charlotte, who is engaged to someone else. She eventually marries her fiancé and Werther takes his own life. The book, with its intense emotion and heady language, had a huge impact on young people, with many starting to dress and act like Werther, some even going as far as to commit suicide themselves. Other well-known pieces include *The Robbers*, a play written in 1781 by Friedrich Schiller that shocked audiences and made its author a star.

Sturm und Drang gave way towards the end of the 18th century to Weimar Classicism, with its emphasis on a new form of humanism.



Goethe painted by Georg Melchior Kraus soon after his novel *The Sorrows of Young Werther* became an instant hit



Voltaire as a young man, painted by the society artist Nicolas de Largillière in 1724

Voltaire's Enlightenment

Perhaps the most famous French philosopher, Voltaire caused his fair share of controversy during his lifetime

Words by Melanie Clegg

Although philosophers and intellectuals had enjoyed a certain amount of reverence and even some modest fame throughout the centuries, not since the days of ancient Greece had they been so celebrated as they were during the Enlightenment. Here the authors of the *Encylopédie* were the undoubted superstars of the literary world, scientists were invited to hobnob in palaces and society hostesses fought over the honour of welcoming the most talked-about philosophers into their salons. This public attention was not at all appealing to some academics and writers, but others revelled in it and thoroughly enjoyed their celebrity status and, in some cases, the wealth and acclaim that it brought with it.

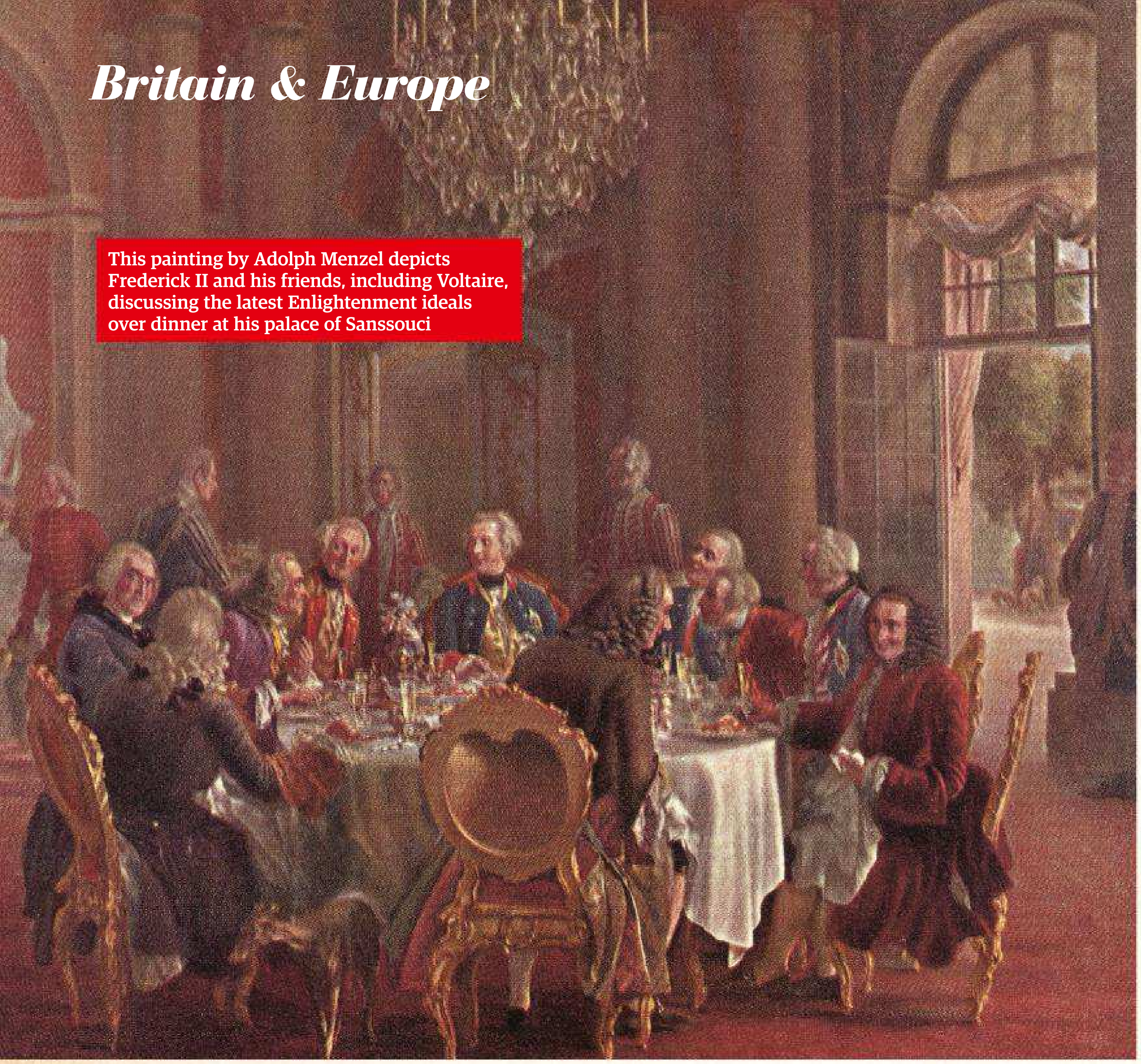
Voltaire, who was born François-Marie Arouet in 1694, was one of those who assiduously courted the spotlight throughout his career. His controversial views about religion, the royal family and the state would even land him inside the dreaded Bastille for almost a year in 1717 after he accused the Duc d'Orléans, who was acting as regent for the young Louis XV, of being in an incestuous relationship with his own daughter.

Born into a well-heeled, middle-class family, Voltaire was educated by the Jesuits at the prestigious Louis-le-Grand school in Paris, which would later also include Robespierre and Desmoulins among its pupils, and was intended for a career in law until he announced that he planned to become a writer instead. Like all the other great thinkers of the Enlightenment, he was well educated, extremely intelligent and very erudite, with a keen interest in a wide range of subjects from literature and art to theology and science.

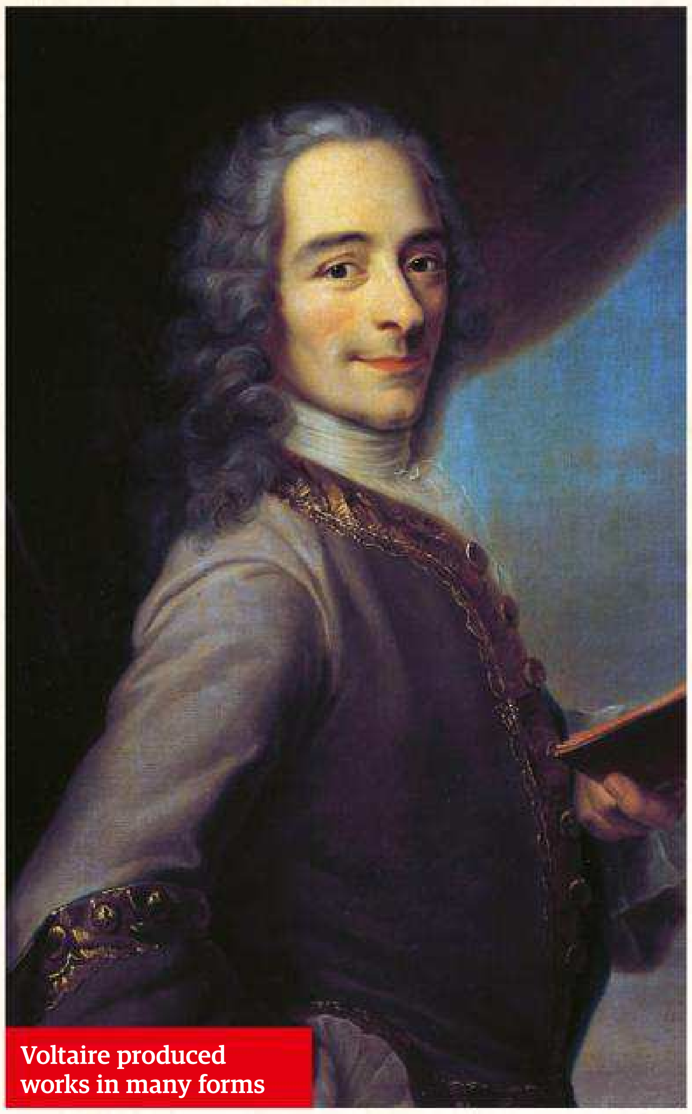
Although he initially saw himself as a playwright, after mixed success Voltaire quickly branched out and began to write poems, books and essays as well, producing an astonishing amount of work in almost every literary form and displaying an extraordinary breadth of knowledge over the course of his long career. However, although he touched upon many topics, the underlying theme of most of his work was freedom, either from the shackles of the Catholic Church or from the restrictions of absolutist monarchy, which he believed maintained an oppressive and tyrannical stranglehold upon the people of France. He was also a fierce advocate for freedom of speech.

After his second spell in the Bastille in 1726, Voltaire was exiled to England where he remained for the next two and a half years, producing a large body of work and developing an admiration for Shakespeare, constitutional monarchy and the British tolerance for freedom of faith and speech - which was markedly greater than that of the French establishment. Voltaire's residence in London would have a profound effect on him, not least because it also gave him the opportunity to mix in British intellectual circles, bringing him into contact with Isaac Newton, Jonathan Swift, Alexander Pope and other influential figures.

When he returned to France, Voltaire immediately set to work and produced *Letters on the English*, a series of epistolary essays ruminating on various facets of British religious and cultural



This painting by Adolph Menzel depicts Frederick II and his friends, including Voltaire, discussing the latest Enlightenment ideals over dinner at his palace of Sanssouci



Voltaire produced works in many forms

life. It was not entirely complimentary, but made enough unflattering comparisons between the liberal British attitude towards religion and the superiority of the British constitutional monarchy and the absolutist monarchy of the Bourbon kings and stranglehold of the Catholic Church for it to be quickly banned, with every copy seized and burnt. Voltaire was forced to leave Paris yet again in order to avoid arrest and an ignominious return to the Bastille prison.

Several years would pass before Voltaire felt able to return to Paris. In the meantime, he kept himself busy writing, maintaining correspondences with many of the leading intellectuals of Europe, including the future Frederick the Great, who was a great admirer of the French philosophers and took a keen interest in the latest developments of the Enlightenment across Europe.

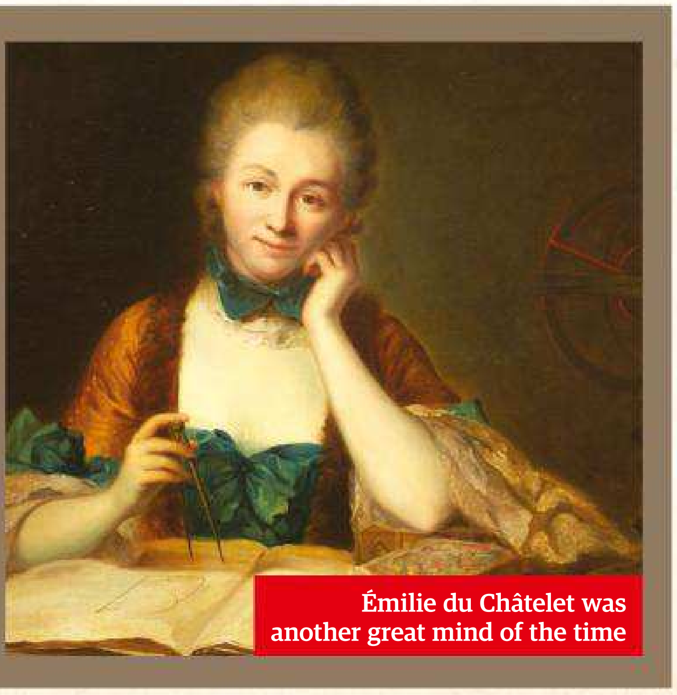
Unable to return to Paris, Voltaire took up residence with his mistress Émilie du Châtelet, a married mother of three who was a gifted mathematician, author and physicist in her own right, in her country château. Although he was often bored by country life, Voltaire produced much of his best work during this period, inspired by Émilie, who was his muse and collaborator as well as his lover. The couple collected an enormous library of over 21,000 books and conducted scientific experiments together in Émilie's laboratory. They shared a mutual fascination with the theories of Isaac Newton, which inspired Voltaire to write his *Elements of Newton's Philosophy*, a document that disseminated Newton's ideas to the French public, while Émilie translated Newton's *Principia* from Latin to French, which made it far more accessible to science enthusiasts.

As well as science, the couple shared an interest in theology, philosophy and history, which led them to analyse the Bible together - an exercise that reinforced Voltaire's disdain for religion and hatred of superstition, which he saw as the natural enemy of reason and a barrier to universal enlightenment. Their mutual thirst for knowledge and commitment to making the exciting new ideas of their time available to everyone made the pair the quintessential Enlightenment couple, drawn together by intellectual compatibility as well as physical attraction. Sadly, their association came to

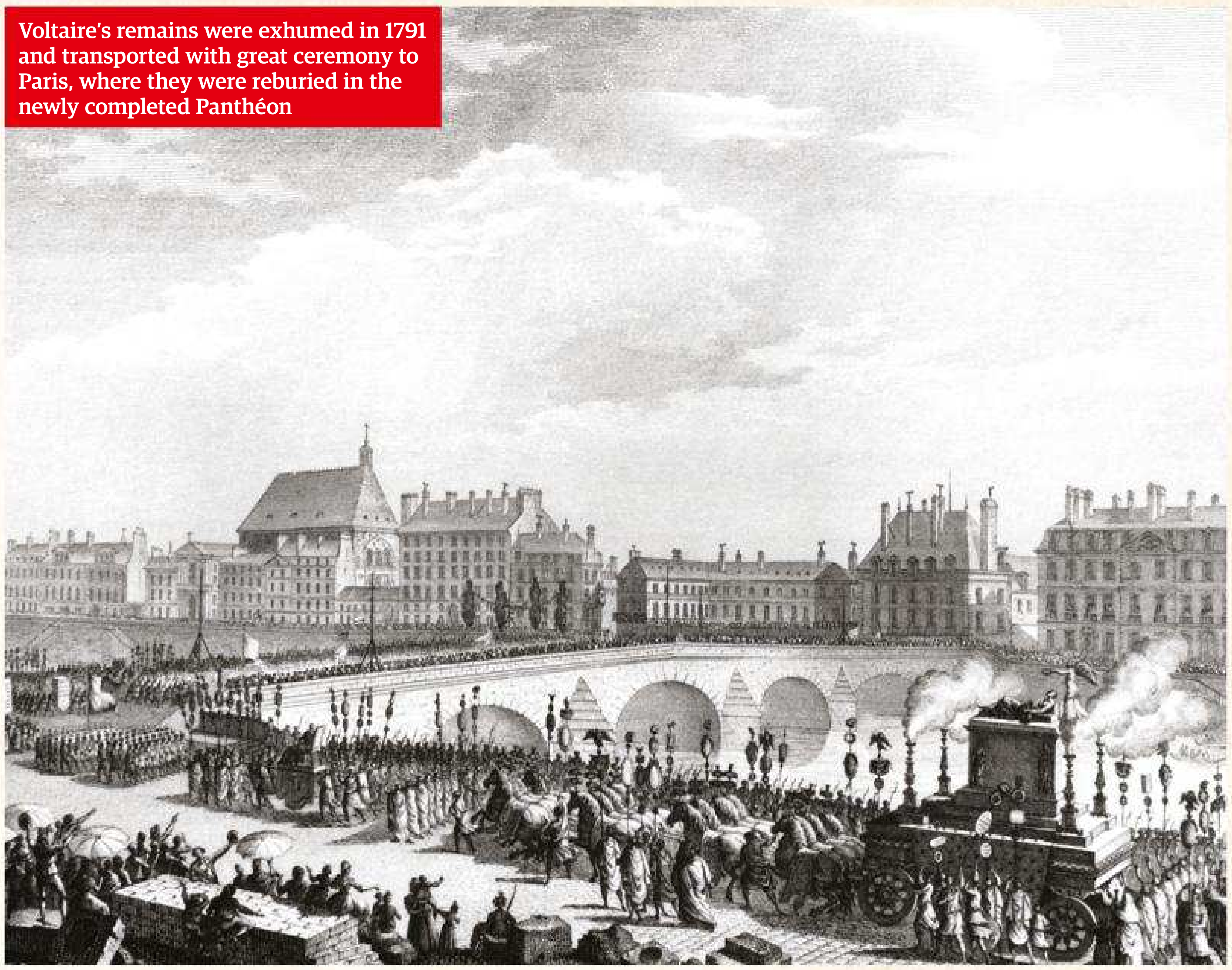
Émilie du Châtelet

Although the celebrated figures of the French Enlightenment were male, women also made their mark by producing work in the fields of philosophy and science

Gabrielle Émilie Le Tonnelier de Breteuil, Marquise du Châtelet, was born and raised in intellectual circles in Paris and was therefore fortunate to receive a well-rounded and thorough education that was denied to most girls of the period. Fiercely intelligent, she was a regular guest at the most fashionable Parisian salons where she associated with a wide circle of philosophers, scientists and writers. She was fascinated by science, particularly physics, and made a name for herself with the publication in 1740 of her *Institutions de Physique* (Foundations of Physics) which was a huge success and was translated into several languages. She is also well known for her translation into French of Isaac Newton's *Principia*, which still remains the standard French translation even today. She published it with her own commentary on Newton's ideas, which included a ground-breaking theory about kinetic energy. Émilie's relationship with Voltaire began in 1733, shortly after she had given birth to her third child, and would continue for well over a decade. After it ended she became involved with the poet Jean François de Saint-Lambert and would die at the age of 42, shortly after giving birth to his child.



Émilie du Châtelet was another great mind of the time



Voltaire's remains were exhumed in 1791 and transported with great ceremony to Paris, where they were reburied in the newly completed Panthéon

"Although Voltaire was not welcome in Paris, he still kept fully abreast of all the latest news and developments"

a premature end in 1749 when Émilie died after giving birth, leaving Voltaire bereft.

Voltaire briefly returned to Paris after Émilie's death but found it as inhospitable as ever. He quickly left and went instead to Prussia where he was welcomed by his friend and patron Frederick the Great, who gave him a position at court, apartments in Charlottenburg Palace, a large income and, most importantly to Voltaire, the intellectual freedom that he had lacked in France.

Although Voltaire believed that kings were intrinsically part of a corrupt system, they could be forgiven on some level if they committed themselves to the welfare of their people - particularly their education, which would bring them out of ignorance and provide them with the tools to improve both themselves and the world that the lived in. However, although Voltaire was not welcome in Paris, he still kept fully abreast of all the latest news and developments thanks to his busy correspondence with the other members of the Société des gens de lettres (Society of Men of Letters), which had been set up by Diderot and Jean le Rond d'Alembert in 1751 to connect the 150 writers working on the *Encyclopédie*.

Voltaire was naturally excited by the project and contributed 26 articles to the work, choosing to write about topics relating to history, philosophy and literature. The collaboration on the *Encyclopédie* was a highly significant moment in the Enlightenment as it brought together some of the finest minds in French intellectual circles and gave them a common goal. For Voltaire, who was unable to return to Paris, it had the additional benefit of keeping him connected to his friends.

When his relationship with Frederick the Great disintegrated two years after his arrival in Berlin, Voltaire hoped that he would be allowed to return to Paris. Instead he found himself banned from the city by Louis XV, and so embarked on a long period of travelling around Europe, eventually settling in Geneva, Switzerland. Although he missed his home, he also derived a certain amount of grim satisfaction from the fact that his banishment only served to confirm all of his criticisms about the lack of freedom in France and the tyranny of the State and Church that were colluding to keep him away merely because he dared to openly criticise them.

While in Switzerlan,d Voltaire completed his best-known work, the satirical novel *Candide: or Optimism*, a coming-of-age tale that charts the descent into disillusionment and cynicism of a young man who has been raised with the principles of the philosopher Leibniz's theory of optimistic determinism - that the world that

An influential mind

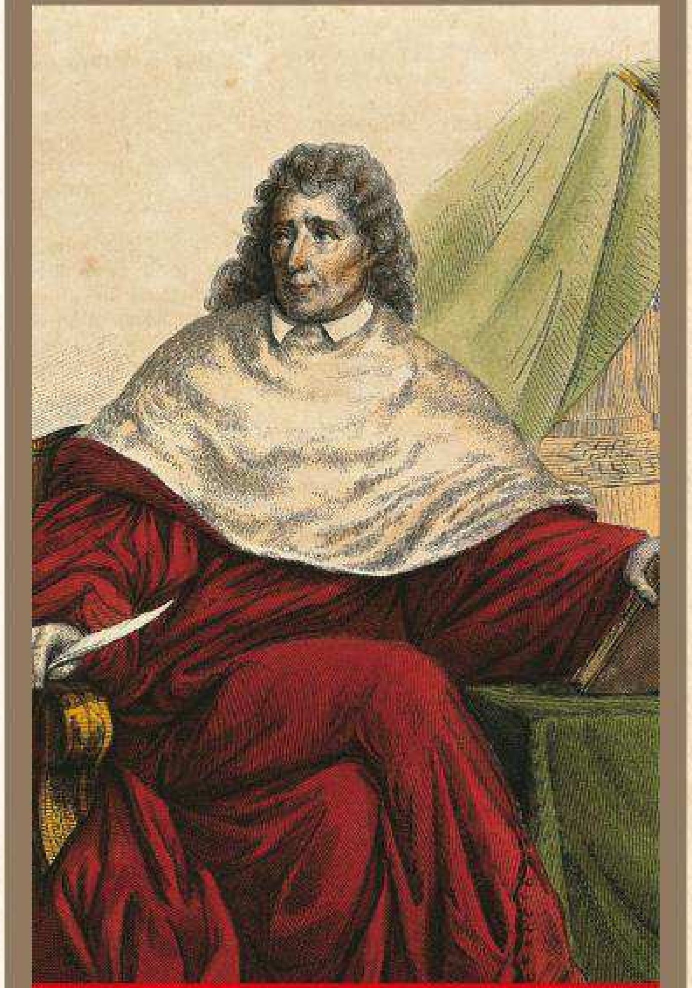
The theories that turned Montesquieu into a renowned philosopher

One of the greatest political philosophers of the Enlightenment, Montesquieu believed that people should be enlightened in order to remove prejudice and ignorance, allowing them to become liberated. With his ideas, Montesquieu helped shape government as we know it.

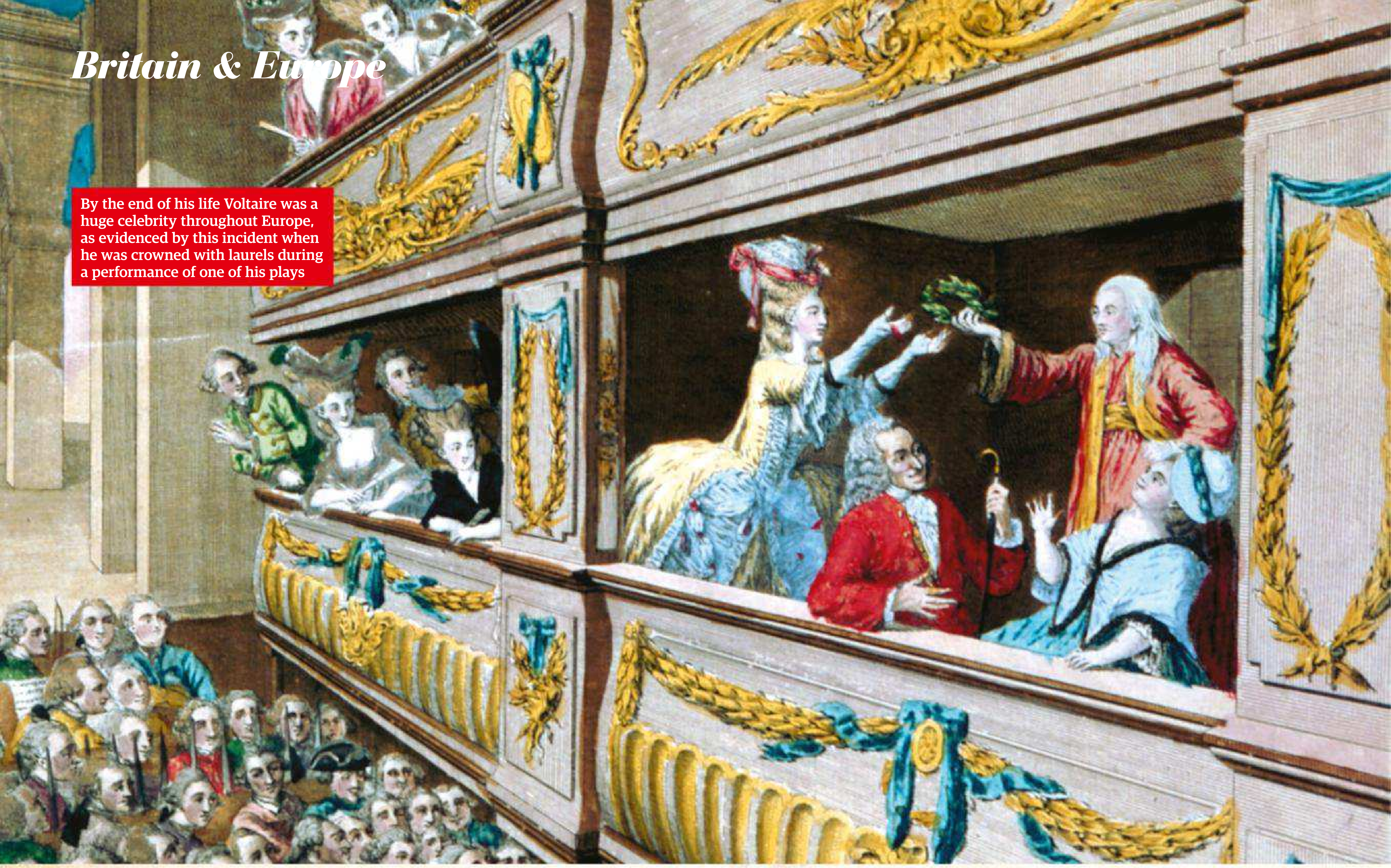
Known for his dislike of despotism, he believed it could be avoided with a balance in power between the monarchy and the government, forming the basis of his main political theory. To achieve this, he claimed that a strong nobility was necessary, and he famously used the constitution of England as a successful example of this power balance. However, he did also fear that the nobility that kept the French monarchy in check was slowly losing its influence.

Montesquieu outlined his beliefs through numerous works, but his most famous was *The Spirit of the Laws*, which was published in 1748. In it, he expanded his political thesis by articulating the theory of separation of powers. He saw two types of governmental power: the sovereign and the administrative.

Montesquieu argued that the latter - consisting of the executive, the legislative and the judicial - should form separate branches that depend on one another and would therefore keep the power of each one in check. His work heavily influenced contemporary and modern political theory.



Montesquieu was a judge, man of letters and renowned political philosopher



By the end of his life Voltaire was a huge celebrity throughout Europe, as evidenced by this incident when he was crowned with laurels during a performance of one of his plays

> "Voltaire believed that God created the world and then left it to its own devices, evidenced by the existence of disease"

we live in is the best of all worlds because it was chosen by God - in a paradise reminiscent of the garden of Eden. The protagonist has no idea of how bad the world actually is until he begins an epic journey that gradually erodes his natural optimism until he becomes embittered about the state of mankind. This reflects Voltaire's position as a deist who believed that God created the world and then left it to its own devices, as evidenced by the existence of disease and natural disasters such as the 1755 Lisbon earthquake.

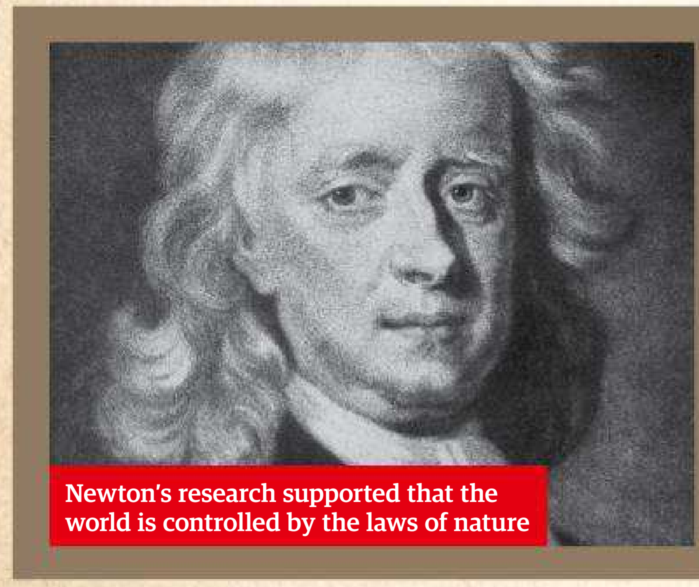
Although the tone is light and accessible, the book is still imbued with Voltaire's trademark loathing of the Church and establishment, and it would be banned in France shortly after its publication in 1759 for being both blasphemous and dangerously seditious. It was too late, though, as although it had been discreetly distributed in order to evade the censors for as long as possible, *Candide* still managed to become a publishing sensation and was enormously popular, which meant that it could never be entirely suppressed.

The huge popularity of *Candide* reflects the growing appetite during the Enlightenment for philosophical literature among readers who might ordinarily have felt intimidated by such books, while the failed attempts to ban and withhold it show how close the French establishment were to completely losing control by the middle of the 18th century. It's inconceivable that such a book would have been allowed to enter circulation during the reign of King Louis XIV but now, less than 50 years after his death, it was widely available and being openly discussed in salons and coffeehouses all over France.

Encouraged by *Candide*'s success, Voltaire's next great work was his *Dictionnaire philisophique* - the culmination of many years work and, to his mind at least, his masterpiece and finest achievement. Published anonymously in 1764, the first edition

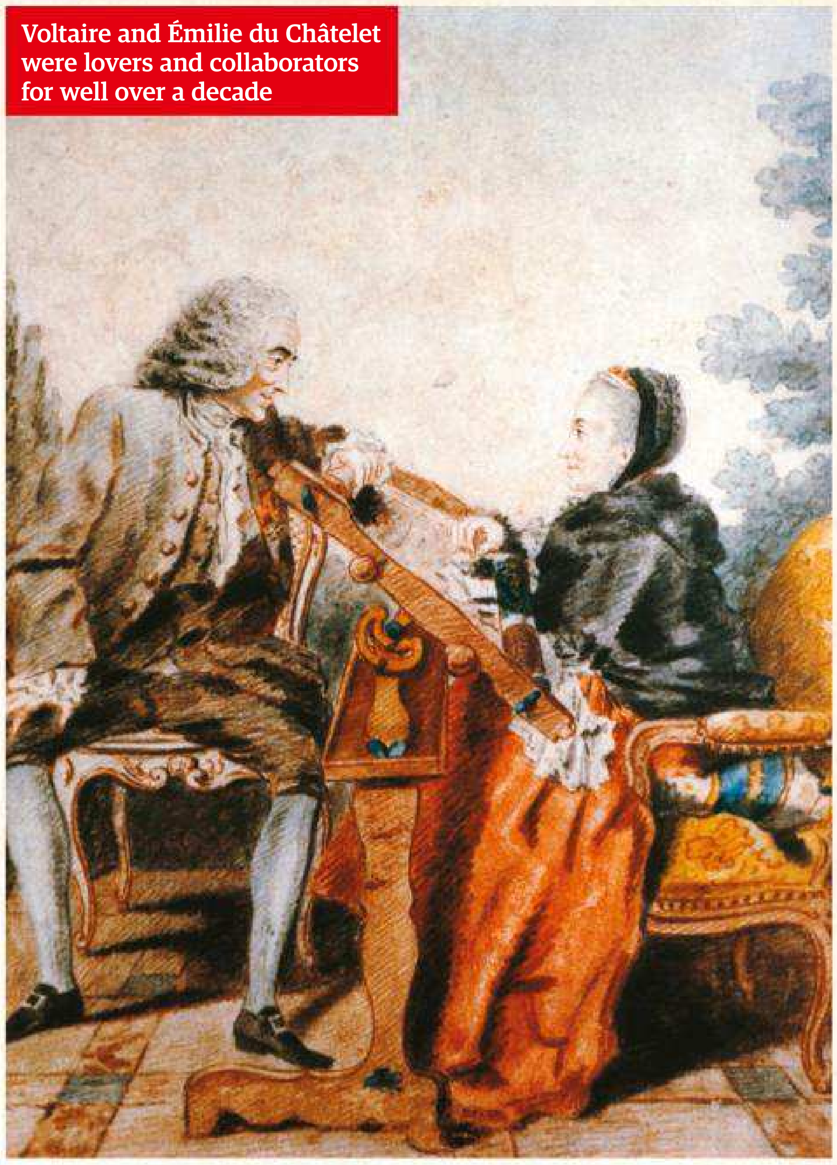
A new view of God

One of the most widely discussed hot topics of the Enlightenment revolved around the existence of God and just how much input he had into the world he had created

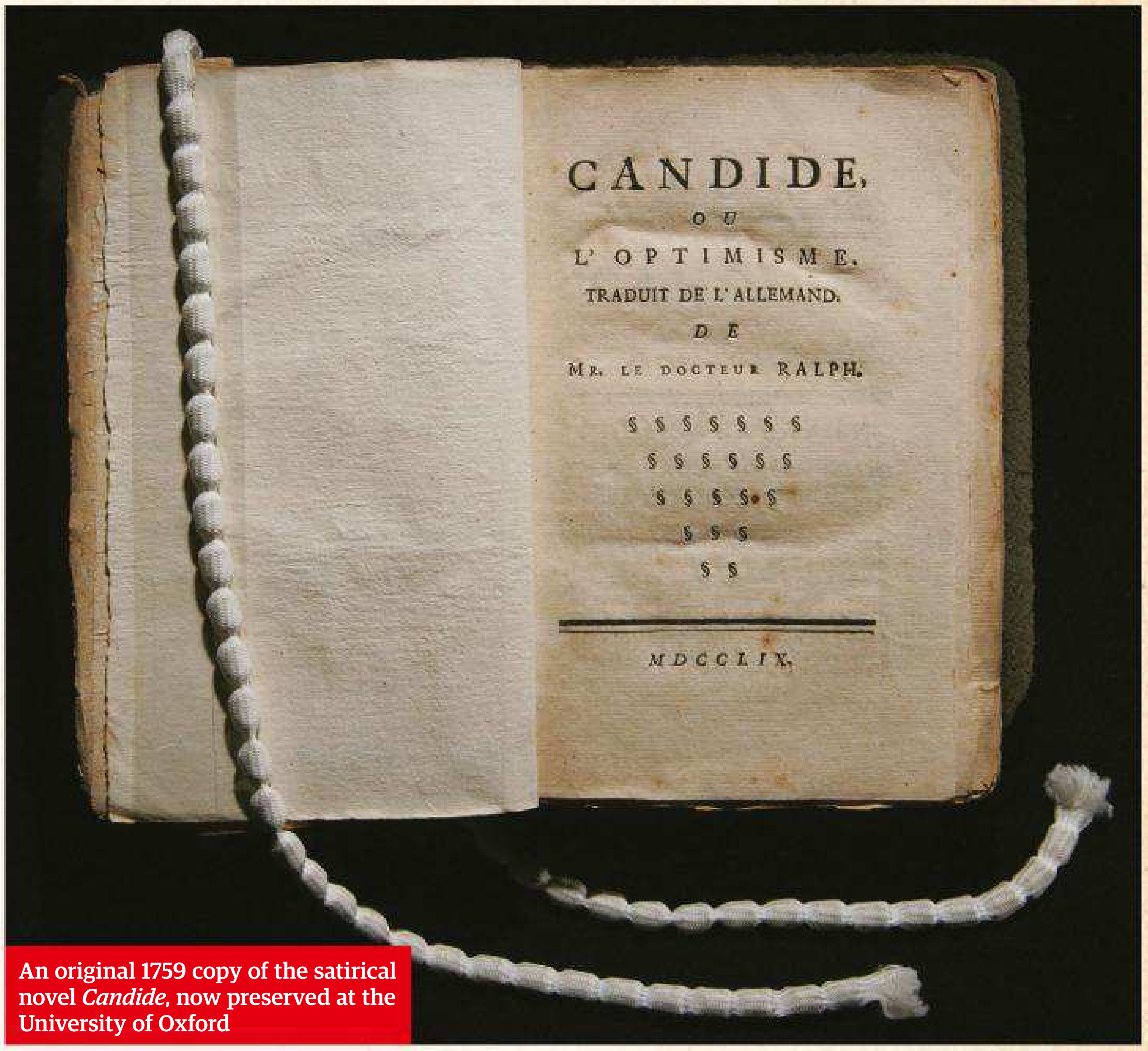


Newton's research supported that the world is controlled by the laws of nature

Like most of the French Enlightenment philosophers, Voltaire considered himself a deist rather than an atheist or agnostic. Deism is a philosophical belief that although God exists and created the universe as well as the world that we inhabit, he takes no actual interest in what happens on Earth, and so cannot be held responsible either for miracles or natural disasters. Although the philosophical principle of deism had been discussed since ancient Greece, most notably by Heraclitus, it did not gain prominence until the Enlightenment when it was espoused by intellectuals such as Voltaire who had become disillusioned by the corruption and venality of organised religion and the reverence attached to superstition. They perceived this to be at odds with the scientific advancements of the time and a cynical attempt to keep the less educated classes under Church control by keeping them in a state of



Voltaire and Émilie du Châtelet were lovers and collaborators for well over a decade



CANDIDE,

OU

L'OPTIMISME,

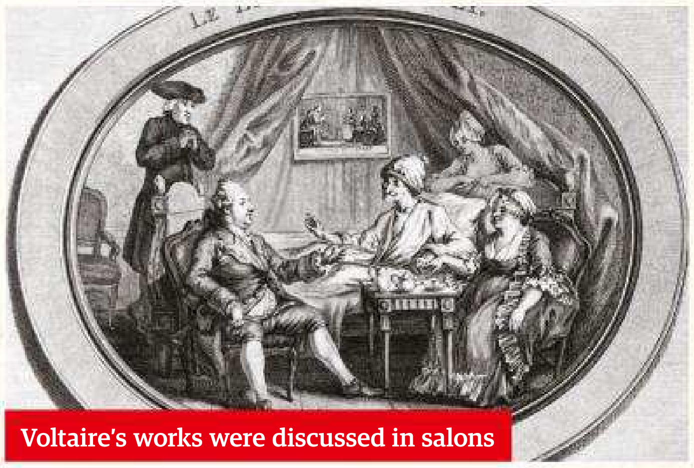
TRADUIT DE L'ALLEMAND.

DE

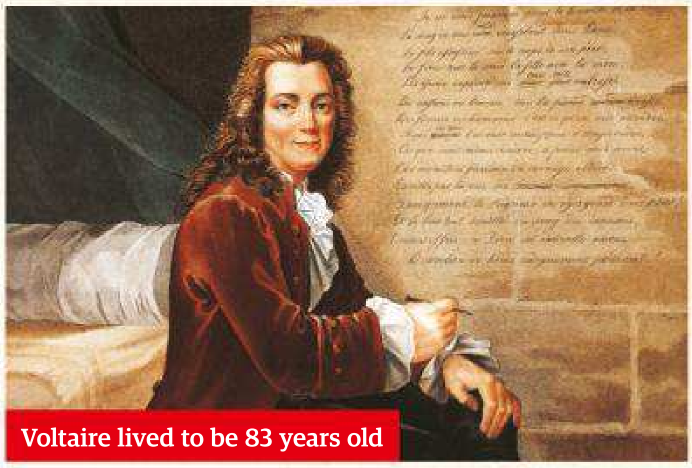
MR. LE DOCTEUR RALPH.

MDCCLIX.

An original 1759 copy of the satirical novel *Candide*, now preserved at the University of Oxford



Voltaire's works were discussed in salons

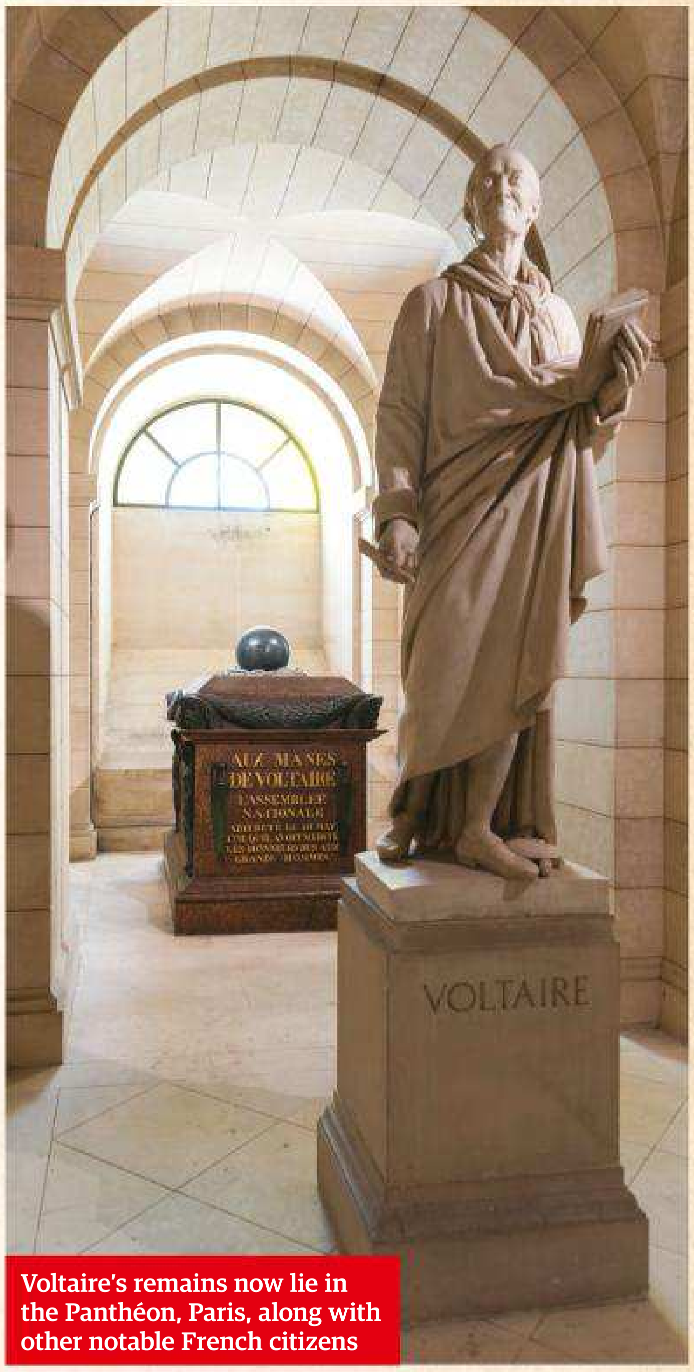


Voltaire lived to be 83 years old

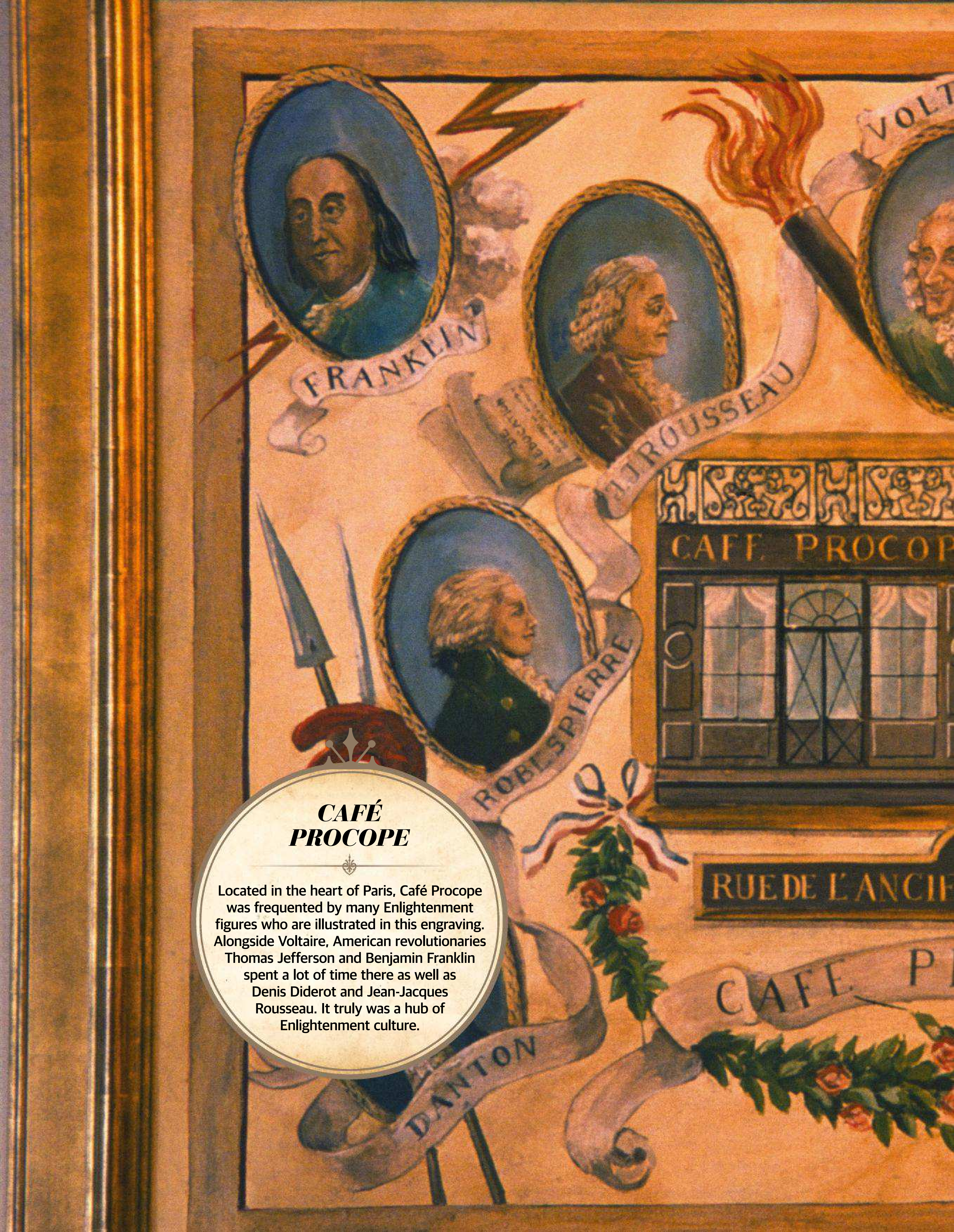
contained 73 alphabetically arranged articles exploring his views on morality, good and evil, and God and religion. Voltaire was inspired by his work on the *Encyclopédie* but considered its enormous size off-putting to general readers. He decided that his own book should be deliberately kept as short as possible and published in a small, pocket-sized format because, as he put it, "revolutionary material must be small enough for people to carry".

Above all, he wanted it to be easy to use and interesting to read - whereas in the past intellectuals had behaved as though their ideas were too important and precious to be dissimulated to the general public, the Enlightenment had changed everything, making writers and academics keen to share their theories with everyone. Voltaire was particularly enthusiastic about this, and his dictionary of philosophy is a masterclass in how to write about often complex topics in a fresh and engaging way, laying out his criticisms of the Catholic Church and monarchy in a way that ordinary readers could easily relate to, while at the same time encouraging them to be more tolerant. Like *Candide*, it was a huge success but was banned in France - where copies were publicly burned - which only served to confirm that Voltaire's criticisms of the lack of freedom of speech in France were entirely justified.

Voltaire was finally allowed to return home to Paris in February 1778, over 25 years since his last fleeting visit. He died there three months later at the age of 83, purportedly still condemning the Catholic Church on his deathbed. Thanks to his views he was denied a Christian burial in the capital. Instead he had to be secretly interred elsewhere until his remains were brought back to Paris in 1791 to be buried amid great pomp and ceremony in the newly completed Panthéon, close to his old school Louis-le-Grand. Accused of heresy, sedition and blasphemy during his lifetime, he was hailed as a hero by the new revolutionary régime, which was busily dismantling the parasitic, corrupt and oppressive establishment that he had hated so much and never ceased to condemn.

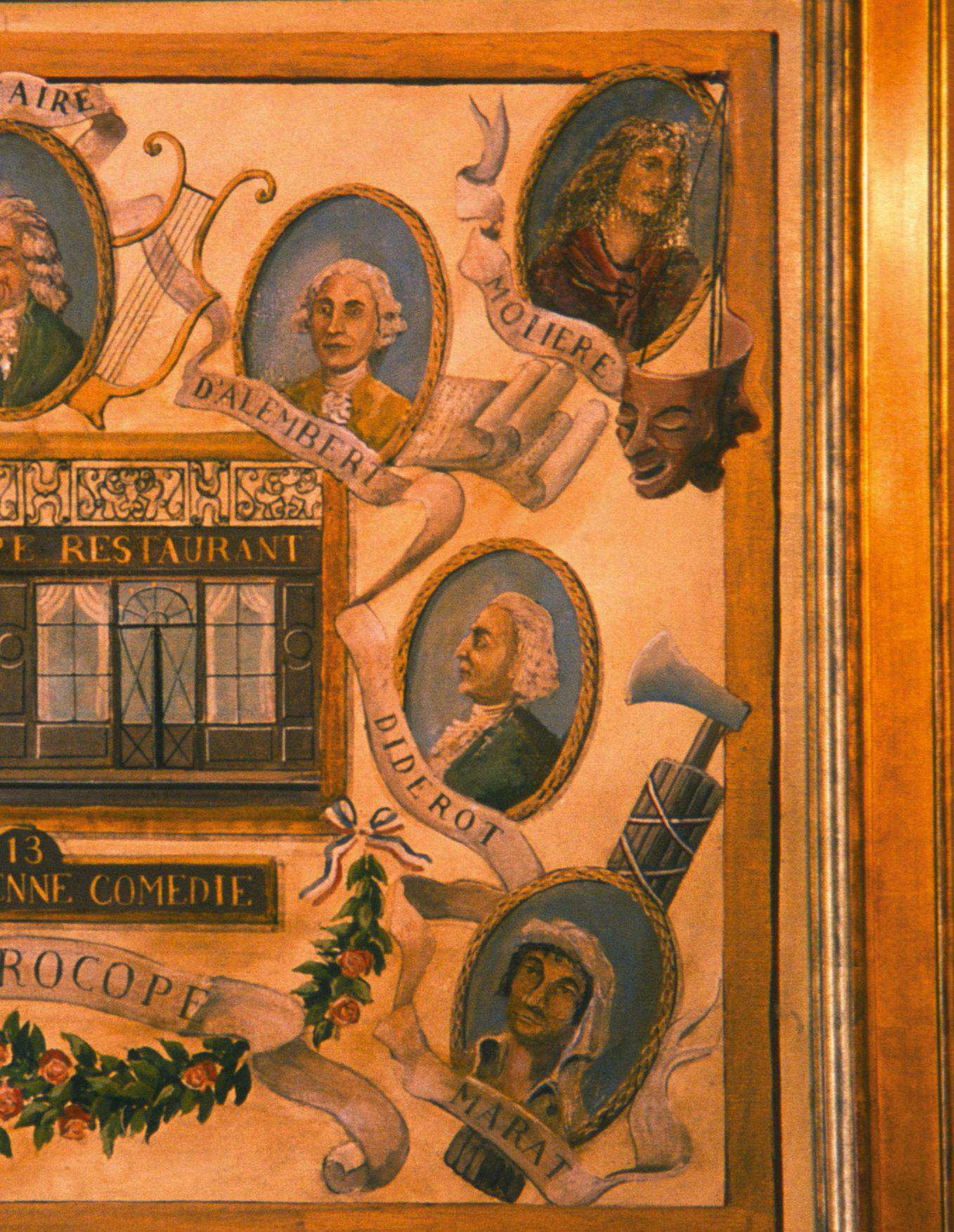


Voltaire's remains now lie in the Panthéon, Paris, along with other notable French citizens


FRANKLIN
VOLT
J.J. ROUSSEAU
ROBESPIERRE
CAFE PROCOP
RUE DE L'ANCI
CAFE P
DANTON

CAFÉ PROCOPE

Located in the heart of Paris, Café Procope was frequented by many Enlightenment figures who are illustrated in this engraving. Alongside Voltaire, American revolutionaries Thomas Jefferson and Benjamin Franklin spent a lot of time there as well as Denis Diderot and Jean-Jacques Rousseau. It truly was a hub of Enlightenment culture.


AIRE
MOLIERE
D'ALEMBERT
PE RESTAURANT
DIDEROT
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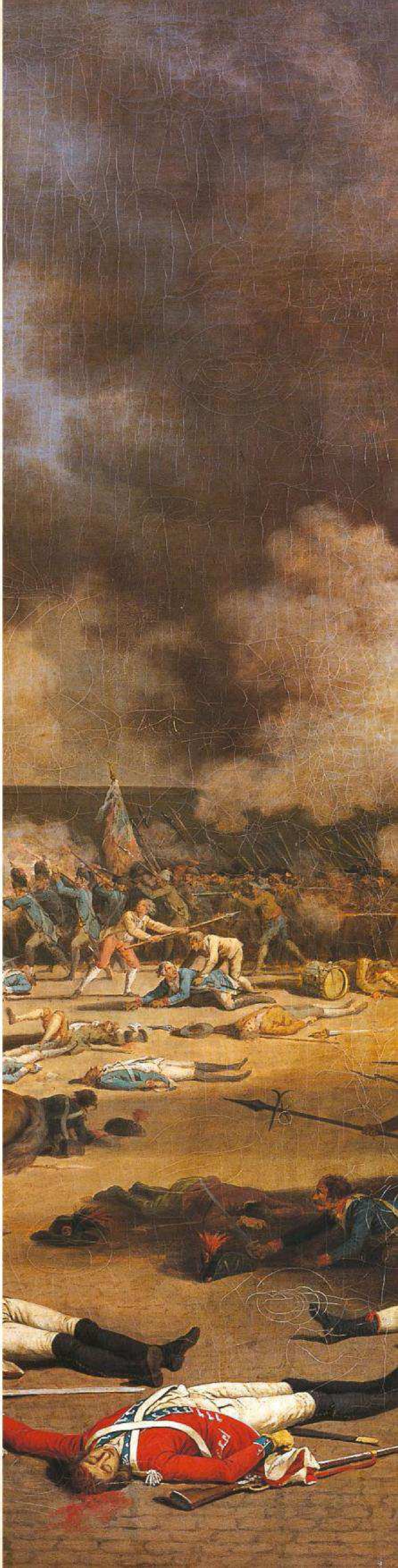
NNE COMEDIE
ROCOPE
MARAT

The French Revolution

How Enlightenment ideas helped lead to the overthrow of a monarchy and the birth of a republic

Words by Melanie Clegg



While the intellectuals of Europe excitedly shared the new ideas of the Enlightenment with each other, it was only a matter of time before their theories began to filter down to the rest of society. Literacy rose sharply throughout the 18th century, especially among women and the working classes. Whereas in the past most households would have owned no other reading material but a well-thumbed Bible, now they began to buy pamphlets and books.

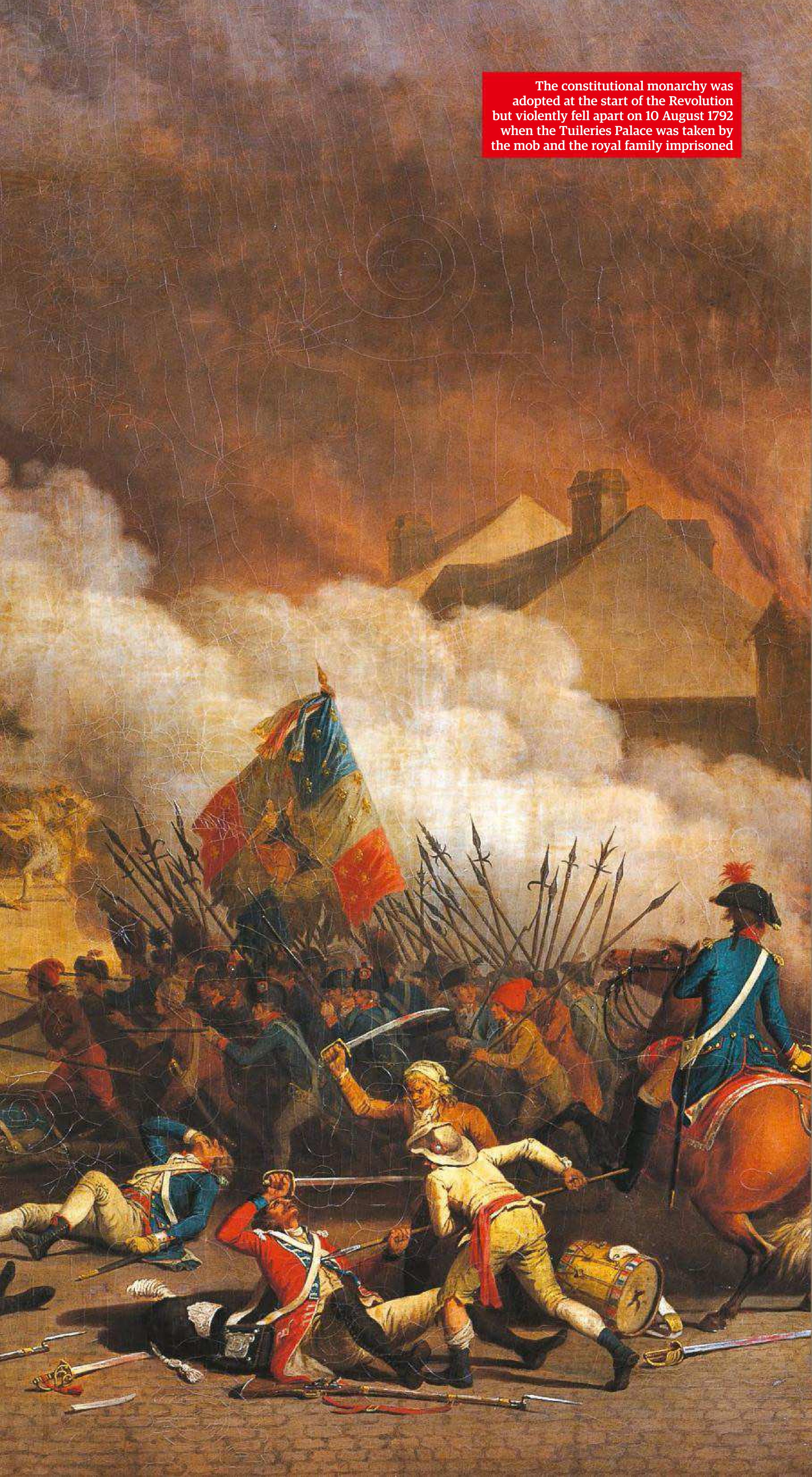
As men and women of all classes devoured the latest publications, attended lectures and came together to discuss the new and exciting ideas of scientists and philosophers, it was only natural that these activities would give rise to a feeling of dissatisfaction with the status quo and, eventually, outright rebellion. It was hardly surprising, considering their vested interest in keeping the lower orders in their place, that the State and Church reacted angrily to the writings of prominent French philosophers, all of whom were highly critical of the establishment and were mostly atheists or at least highly doubtful about the existence of God.

When Diderot's ground-breaking *Encyclopédie* was published in France between 1751 and 1772, it was loved by its readers but greeted with outrage by the authorities. Its contributors were denounced as blasphemous and seditious. Voltaire, in particular, attracted a great deal of attention from the authorities thanks to his anti-establishment views and open contempt for both the monarchy and Roman Catholic Church. He was also keen to make his work available to people of every class, even deliberately having his *Dictionnaire Philosophique* printed in a smaller size so that it could be carried about in pockets.

His contemporary Jean-Jacques Rousseau was equally keen to engage with readers and, like Voltaire, employed several different mediums such as novels, books and even his own memoirs to get his ideas across. In the past, philosophers had considered themselves to be the intellectual superiors of the masses and had taken little interest in anyone outside their own narrow sphere. Now they wanted to see their ideas spread as widely as possible and encourage critical thinking and debate, which was naturally something that the Church and establishment were keen to suppress.

Both Voltaire and Rousseau would be persecuted and forced to live outside France for several years, but despite the best efforts of the State and Church, it proved impossible to suppress their work at home. They were both revered as champions of liberty and freedom, with Rousseau's opening lines to his *Encyclopédie* article about political economics – "Man is born free, and everywhere he is in chains" – having an especially profound and stirring effect on readers all across France in the years leading up to 1789.

One of the greatest influences on Rousseau and Voltaire was the English philosopher John Locke, who died in 1704 and was considered by many to be the 'father of liberalism'. Of particular interest to the French philosophers, who were so critical of the absolutism of the Bourbon regime, was Locke's belief in republicanism – namely that a government should be elected by the people and that its primary goal should not to control or oppress the populace, but

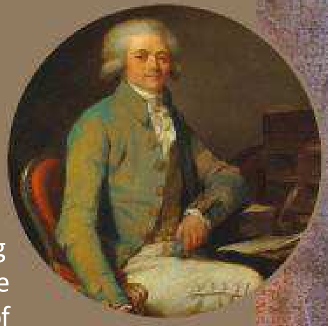


The constitutional monarchy was adopted at the start of the Revolution but violently fell apart on 10 August 1792 when the Tuileries Palace was taken by the mob and the royal family imprisoned

Enlightened revolutionaries

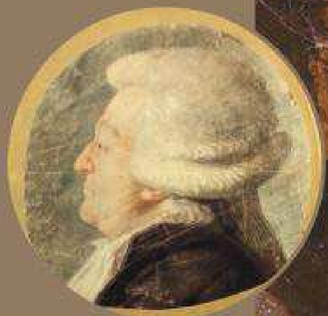
The one thing that all the main figures of the French Revolution had in common was a mutual reverence and respect for the ideas espoused by the Enlightenment

ROBESPIERRE



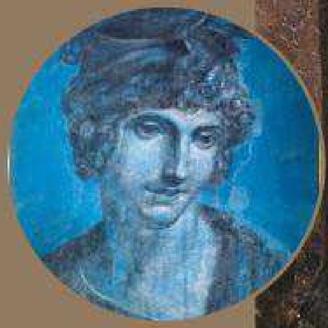
Maximilian Robespierre was a passionate devotee of the Swiss philosopher Jean-Jacques Rousseau, sharing his deist beliefs and particularly espousing his idea that every man's ultimate goal should be to attain a state of perfect virtue and moral integrity.

MIRABEAU



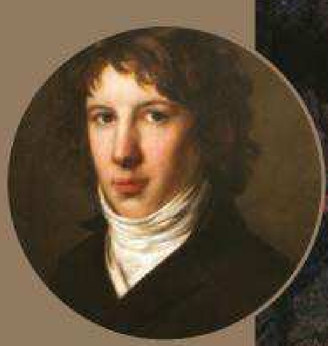
Honoré Riqueti, Comte de Mirabeau, was one of several liberal-minded aristocrats who rose to prominence in the early years of the revolution. A great admirer of Montesquieu, he strongly advocated for the creation of a constitutional monarchy in France.

OLYMPE DE GOUGES



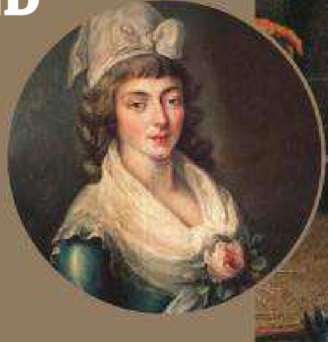
Olympe de Gouges was a playwright, intellectual, human rights advocate and early feminist whose *Declaration of the Rights of Women* was published in 1791. After openly criticising Robespierre and his faction, she was arrested and guillotined in 1793.

SAINT-JUST

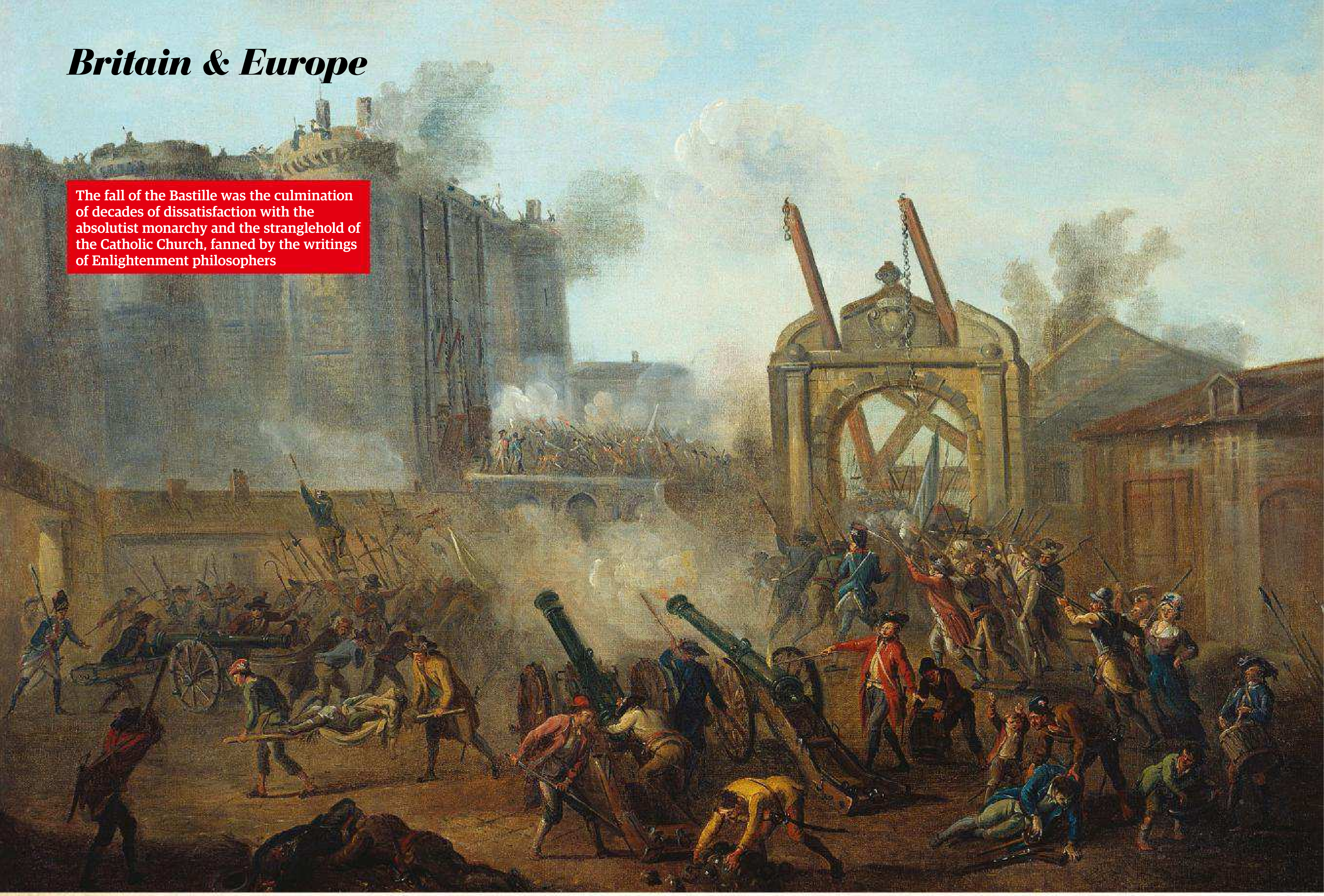


Louis Antoine de Saint-Just was heavily influenced by Voltaire, whose style he aped, along with that of his favourite ancient Roman authors, while writing his lengthy epic poem *Organt*, which savagely denounced the corruption of the Church and the monarchy.

MANON ROLAND



Jeanne Manon Roland was one of the most prominent female intellectuals and salonnières of revolutionary Paris. Although she herself did not become a politician, she was still one of the most influential members of the Girondin party.



The fall of the Bastille was the culmination of decades of dissatisfaction with the absolutist monarchy and the stranglehold of the Catholic Church, fanned by the writings of Enlightenment philosophers

instead foster a sense of moral responsibility in its citizens while improving their lives and encouraging them to make the best of themselves. He also believed that no monarch should ever be entrusted with absolute power because of an accident of birth; instead there should be a system of constitutional monarchy and a social contract wherein the sovereign works alongside the government.

The French monarchy, based at Versailles, was cut off from the will and desires of the people and apparently devoted itself to the enrichment of an aristocratic elite. King Frederick the Great of Prussia, who was a friend and patron of both Voltaire and Rousseau, was an example of a ruler who used his power to benefit his people, and was often held up by French intellectuals as an example of how a monarch should be. Meanwhile, the French kings were regarded as ignorant, selfish and corrupt.

Locke's political theories were echoed and amplified for a French audience by the venerable philosopher Charles-Louis Montesquieu, who also believed that the best system of government was a liberal constitutional monarchy in which the sovereign had extremely limited powers. In his 1753 book *L'Esprit des Lois*, regarded by many to be his masterpiece, he went even further by suggesting that it was dangerous for one single entity or person to have full control of the government, lest they become corrupted by power and become a despot. Instead, he believed the state should be split into different branches that would hold equal power and prevent others from taking complete charge.

In England, whose system was much admired by French intellectuals, the state was divided into three: the Crown, Parliament and the Law, all of which held the others accountable for their actions while at the same time working independently of one another. This seemed a much fairer system than the one in France, where all power devolved to the monarch and the Church and nobility had far more influence than was considered fair. It's notable that although the state was freely and often ferociously criticised and there

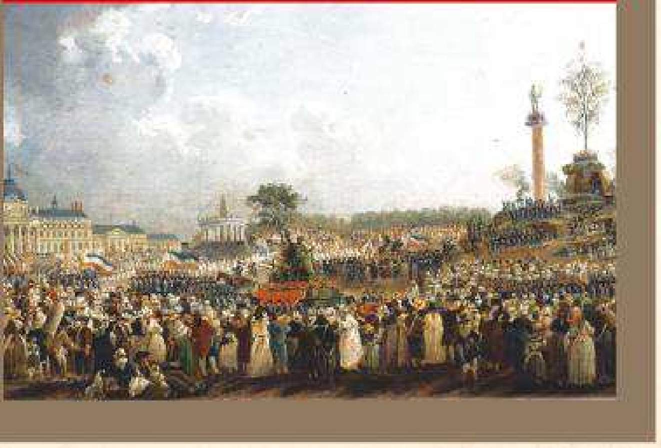
Cult of the Supreme Being

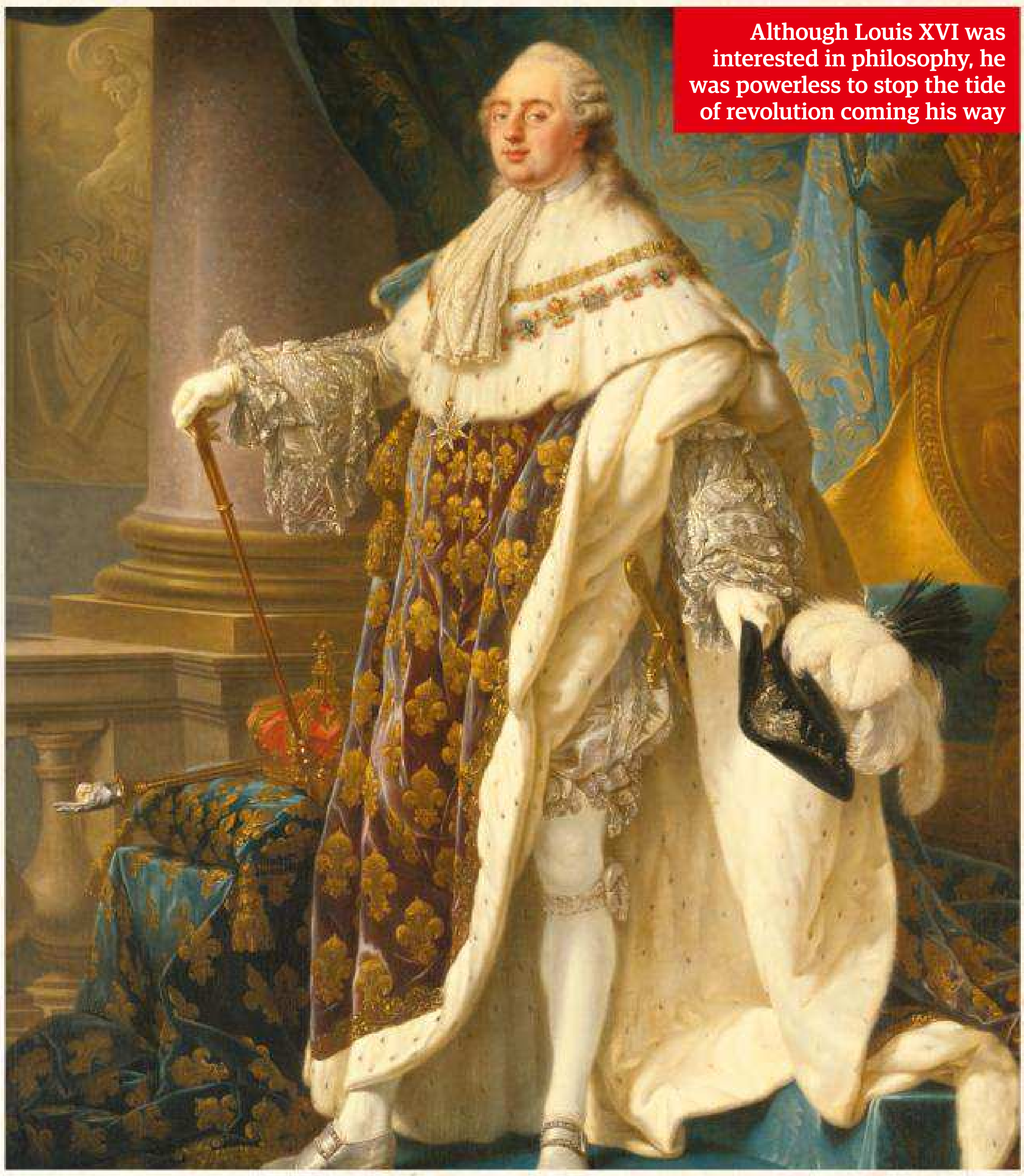
Once the French Revolutionaries had done away with the Catholic Church, they needed to invent something to replace it

By the time the French Revolution began in 1789, the Catholic Church was universally loathed throughout France, the hatred fanned by the highly critical writings of Voltaire, Diderot and Rousseau. It was hardly surprising that the Church's influence would be quickly dismantled and then done away with thanks to the legislations of the successive revolutionary governments, eventually resulting in the complete dechristianisation of France.

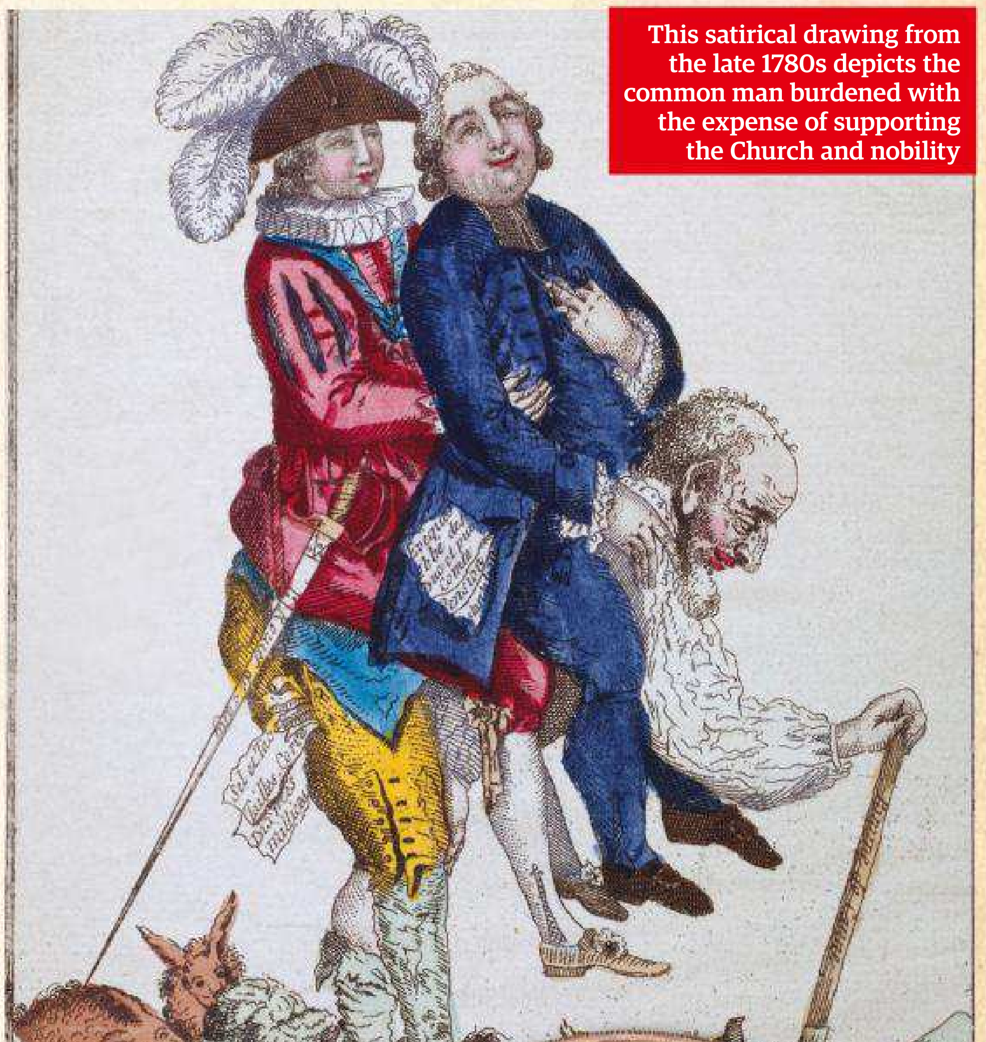
It was replaced by the Cult of Reason, which was a form of anthropocentric atheism, but this was quickly displaced by the deist ideals that had been most notably espoused by Voltaire. Chiefly conjured up by Robespierre, who very much took to heart Voltaire's words "If God did not exist, then it would be necessary to invent him", the resulting Cult of the Supreme Being was officially inaugurated as the state religion in May 1794 and celebrated in Paris with an ostentatious festival orchestrated by Robespierre and the artist David a month later. However, it failed to capture the public imagination and would be quietly dropped and forgotten after Robespierre's execution in July 1794.

Robespierre's Festival of the Supreme Being was held on the Champ de Mars in Paris in June 1794

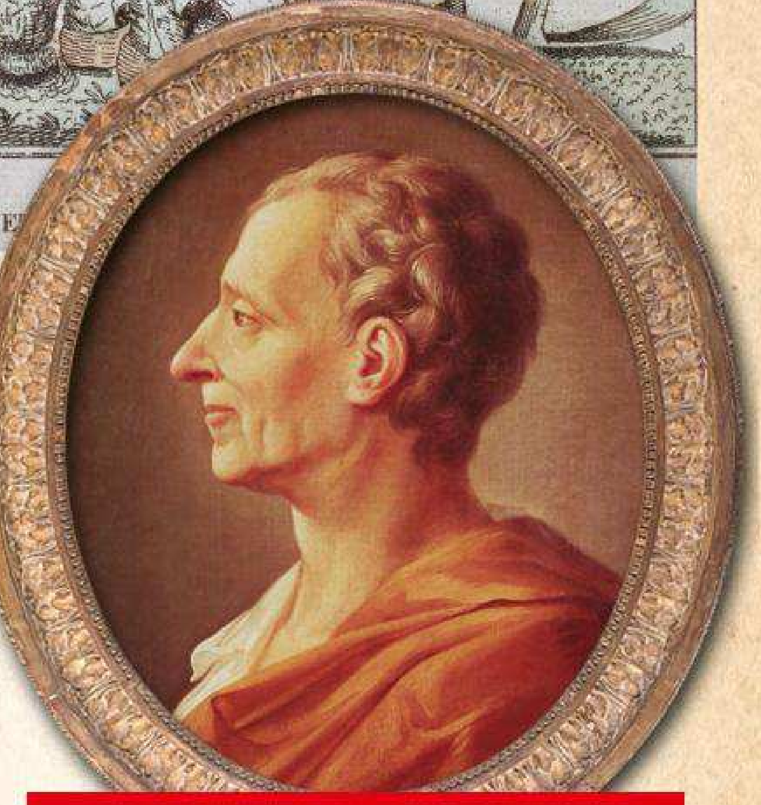




Although Louis XVI was interested in philosophy, he was powerless to stop the tide of revolution coming his way



This satirical drawing from the late 1780s depicts the common man burdened with the expense of supporting the Church and nobility



Monstesquieu's writings about forming a fair and liberal government inspired the early revolutionaries, although his principles were soon abandoned

> "Locke's political theories were echoed and amplified for a French audience"

was much discussion about what form a fairer, more democratic system might take, there was still very little talk about whether or not it might be better to do away with the monarchy – this development would not occur for quite some time.

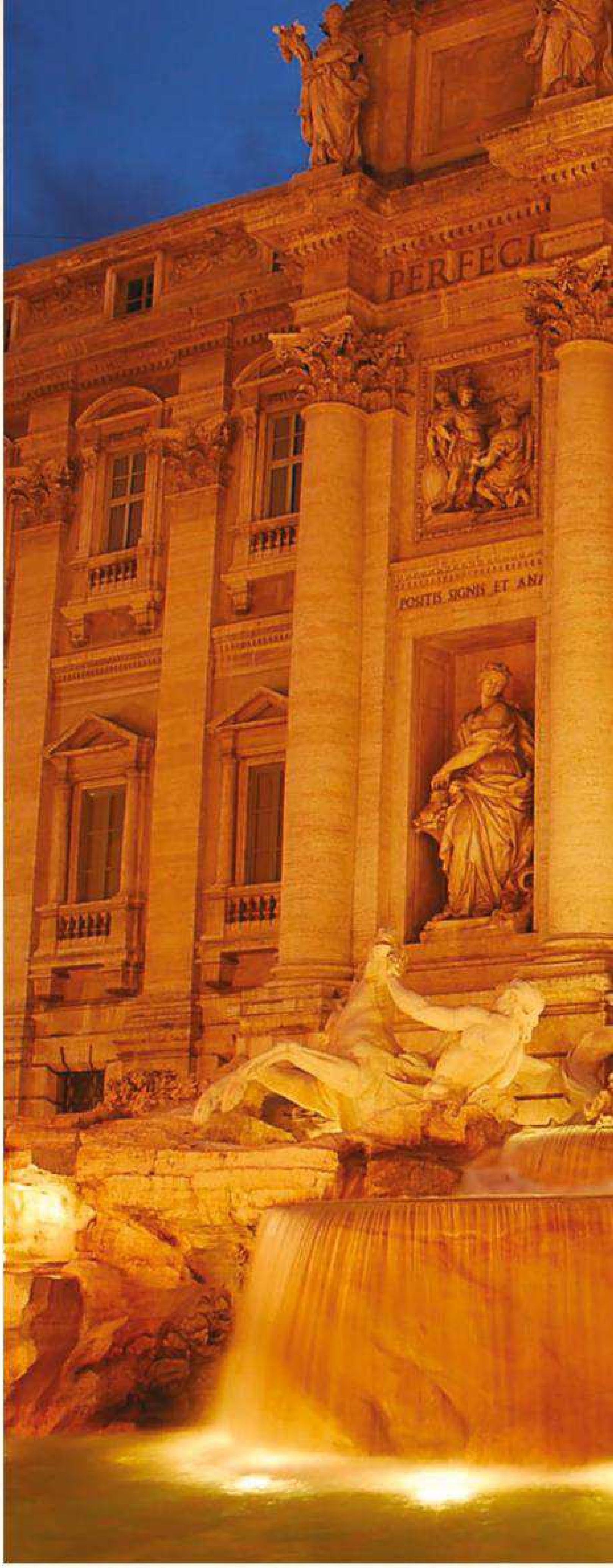
While philosophers were highly critical of the Bourbon kings they reserved most of their ire for the Catholic Church, which maintained a stranglehold upon the French people both financially and emotionally. As far as they were concerned, it was impossible for the people to achieve true freedom both of thought and person so long as the Church continued to exert its malign influence.

Despite their antipathy for the monarchy, philosophers believed that there was still a place for it within the restrictions imposed by a constitutional system. Many saw no such role for the Church, however, while others such as Montesquieu still believed that there was a place for it within a separation of powers, which would ultimately have restricted its influence and made it more answerable to the people. As far as writers such as Voltaire and Rousseau were concerned, the Catholic Church was at the very heart of the corrupt and unequal system that was destroying their beloved France and should be replaced by the deism that they espoused.

This would eventually happen during the Revolution when Robespierre, who renamed it the Cult of the Supreme Being, declared it to be the new state religion of France in 1794. The licentious priest, the promiscuous nun and the ineffectual buffoonish prelate would all become increasingly vicious and recognisable caricatures during the years leading up to the French Revolution, destroying the last lingering credibility of the Church as effectively as the libellous tracts denouncing the private behaviour of Marie Antoinette and Louis XVI were in diminishing the final traces of respect for the monarchy.

When revolution finally came in 1789, it was initially an idealistic force that was driven by the writings of philosophers such as Diderot, Voltaire and Rousseau – men who had believed in the principles of freedom – while the political theories of Locke and Montesquieu lay the groundwork for a new and improved constitutional monarchy, albeit a short-lived one that was destined to completely collapse in the summer of 1792. The new upcoming politicians of the Revolution, men such as Robespierre, Danton and Saint-Just, were all highly educated, skilled orators and as passionately devoted to the concept of liberty for all men as their philosopher predecessors had been.

Voltaire and Rousseau, both of who were especially revered by Robespierre and Saint-Just, were both dead long before 1789, but their influence lingered on. Both received the great official accolade of burial in the Panthéon church and all manner of public memorials. Robespierre in particular was devoted to the memory of Rousseau, whose belief in a common good, or rather a collectivist movement that encouraged individuals to work together for the good of the French people, lay at the heart of his own ideology. However, Rousseau, along with Voltaire and the other intellectuals whose ideas had such a profound influence on the young men and women of the French Revolution would no doubt have been appalled by the violent direction that it took.



Italy Reborn

How a small band of thinkers in the Italian states laid the foundation for many of the liberal ideas that underpin modern society

To talk of Italy as a unified entity before 1861 is both factually inaccurate and unhelpful. Throughout its history, the nations that made up the Italian States have been a colourful menagerie of ideas and - sometimes - conflicting cultures. Venice was known not just for being a nation of merchants, but also for its staunchly republican traditions. The city-state of Florence, ruled over by the powerful Medici family, was, on the other hand, a nation of art and ideas, the birthplace of the Renaissance that ushered in the Early Modern period and was home to the likes of Michelangelo, da Vinci and Machiavelli.

By the 18th century, however, the Italian states, like much of Catholic Europe, were in crisis. The Spanish War of Succession had torn Europe apart, upending the dynasties in various territories and leading to many of the southern states eventually coming under the rule of the Bourbons. Meanwhile the north, under Austrian Habsburg control, further fractured any sense of Italian unity.

The aftermath of the war also marked a stark power shift in Europe. The newly unified and Protestant United Kingdom, with its powerful navy, far eclipsed both Spain and the traditional Italian maritime republics of Genoa and Venice in sea-fearing dominance.

Catholicism, on the other hand, was suffering an existential crisis. Britain had reformed both its political systems, introducing a constitutional, parliamentary monarchy, as well as a modernised economy, while the absolutist tendencies and archaic instruments of power that characterised the catholic states meant it struggled to compete.

This crisis was an opportunity for thinkers and radicals alike. In Naples, the economist Ferdinando Galiani published his tract *On Money* in 1751. Like Adam Smith's *The Wealth Of Nations*, which was to be published in 1776, Galiani's economic arguments were revolutionary, particularly after a terrible famine hit Naples in 1764, which exposed the corruption of Neapolitan society. Galiani argued

Cesare Beccaria

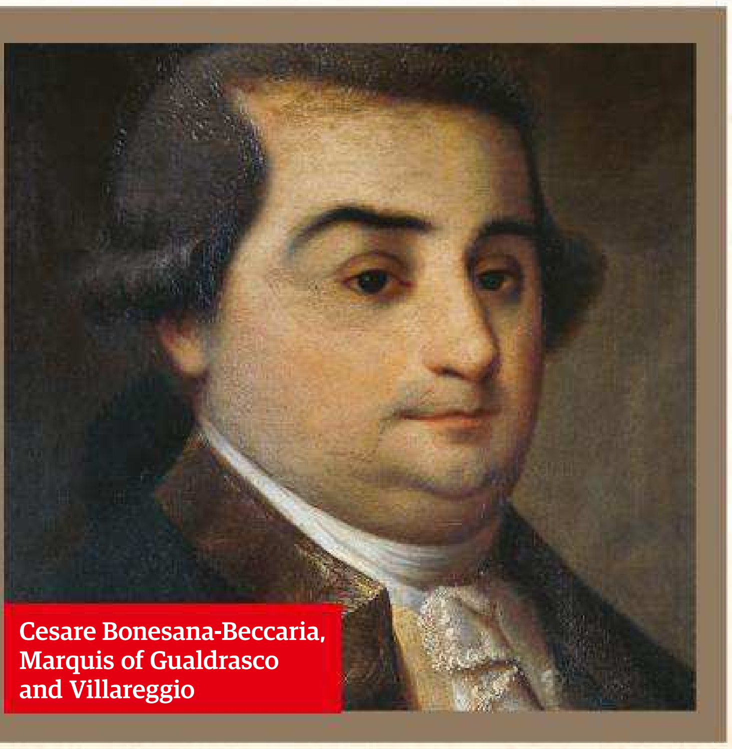
How this celebrated figure transformed ideas on crime and punishment

While many Enlightenment figures were focused on reforming the economy and their country's political systems, Cesare Beccaria looked at the justice system, which he saw to be unjust and downright impractical.

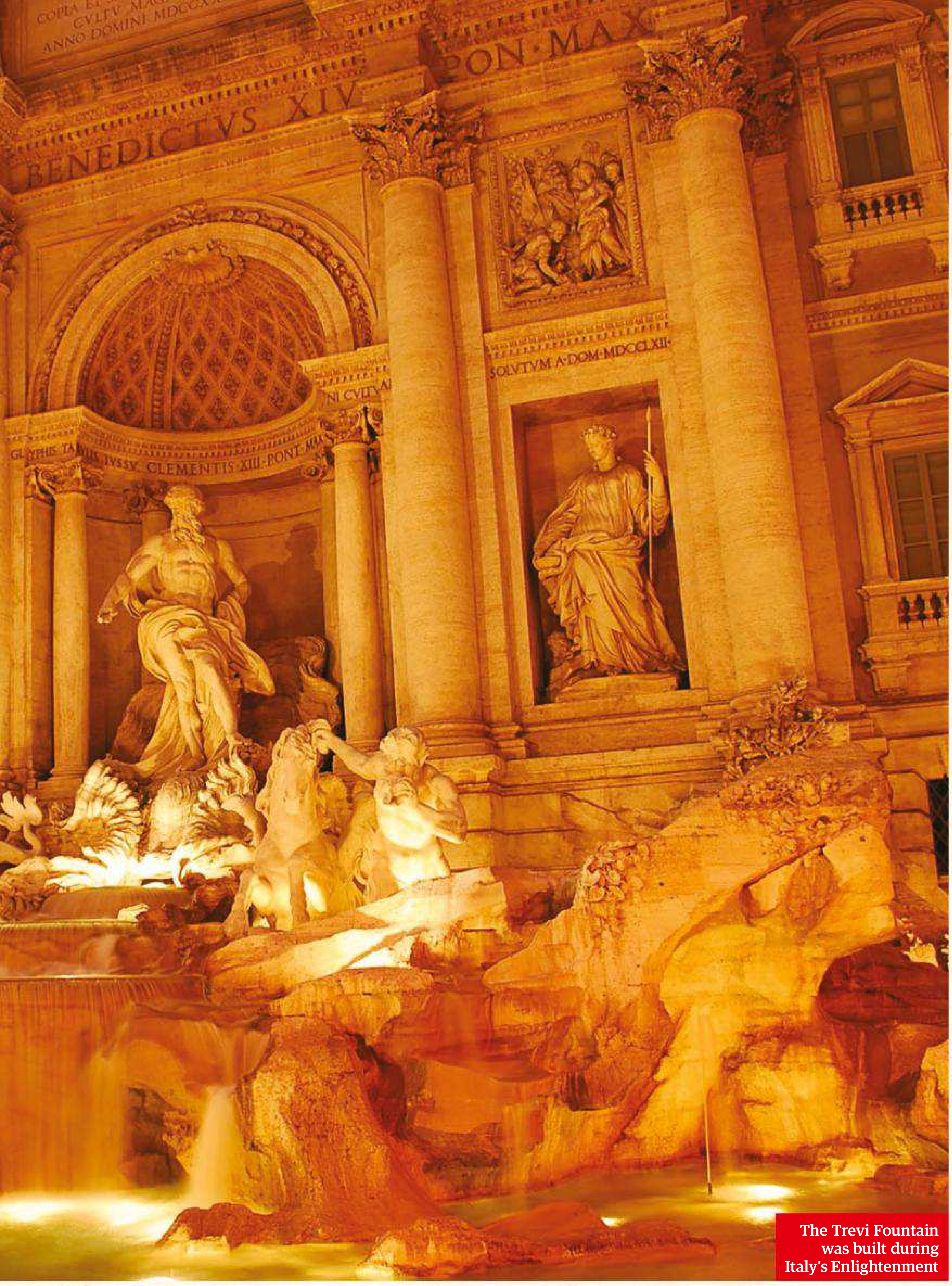
Educated by Jesuits – who he later described as "fanatical" – he studied law at the University of Pavia in Lombardy before joining the Milanese intellectual circle known as the Academy of Fists and contributing essays to the journal *Il Caffé*.

In his 1764 work *On Crimes And Punishments*, Beccaria argued that torture and overly excessively penalties were not only barbaric, but also philosophically illogical. In a society based on free will, the justice system should seek to uphold that free will as far as possible by punishing only crimes that disrupted the so-called social contract – an idea established by John Locke, Jean-Jacques Rousseau and David Hume – to a level that was deemed to be proportionate to the severity of the disruption that had been caused.

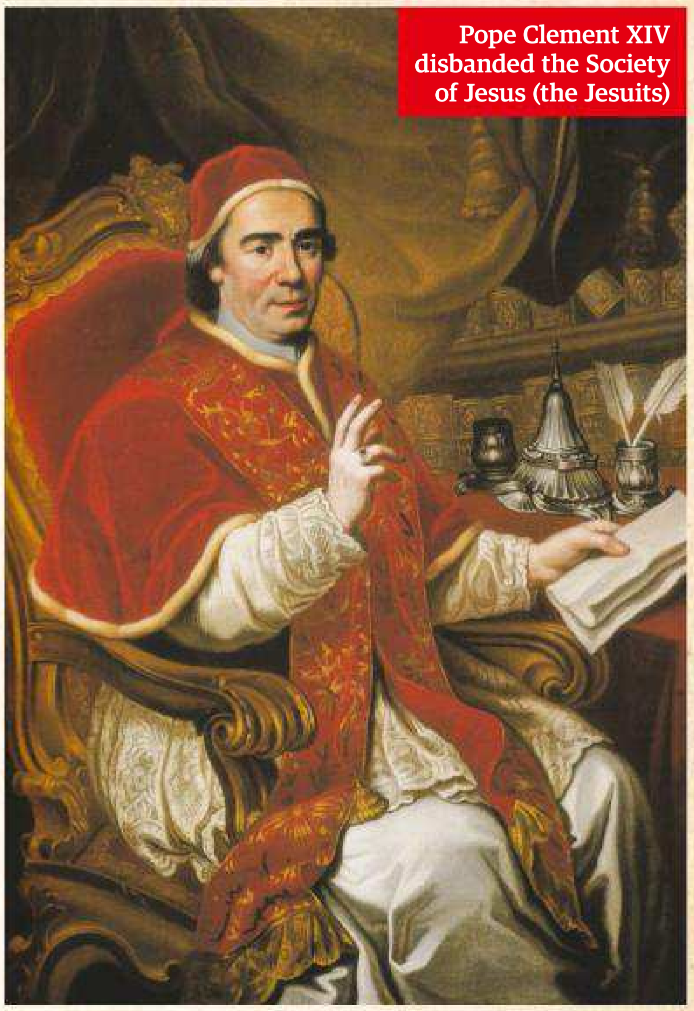
One of Beccaria's most revolutionary ideas was the abolition of the death penalty. He made several arguments that are still widely used by abolitionists today: that it is irreversible, that there is no way of ever gaining the proof to be entirely sure of someone's guilt, and that it is nothing more than "legalised murder". He died in 1794, depressed by the bloody excesses of the violent French Revolution.



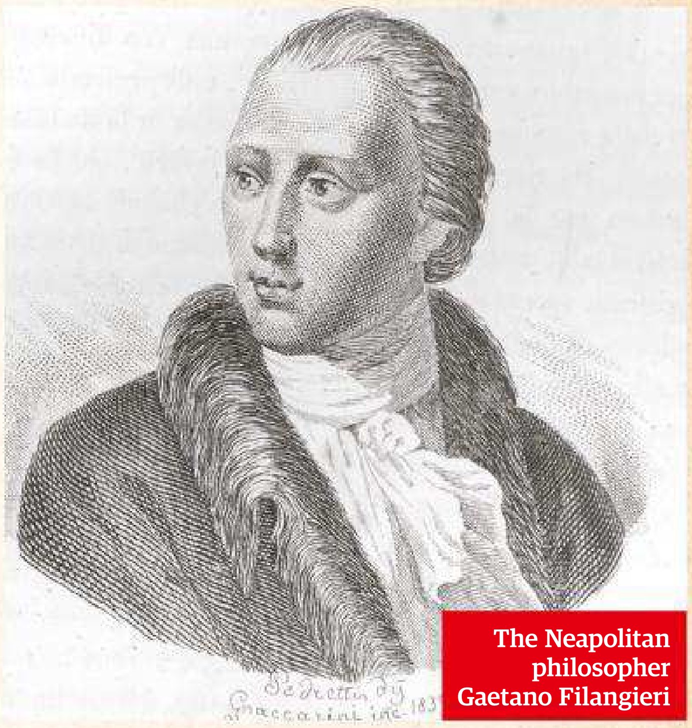
Cesare Bonesana-Beccaria, Marquis of Gualdrasco and Villareggio



The Trevi Fountain was built during Italy's Enlightenment



Pope Clement XIV disbanded the Society of Jesus (the Jesuits)



The Neapolitan philosopher Gaetano Filangieri

for "managed inflation" to control the circulation of money and goods. Attempts were made to reform and even abolish the feudal system altogether, as well as the governmental systems not just in Naples, but also in Milan and in the monarchical Papal states. However, this proved to be difficult.

The publication of Gaetano Filangieri's multi-volume polemic *The Science of Legislation*, incomplete at the time of his death, was hugely influential among reformist ideas. Filangieri saw it as a guide to how legislation - from politics and the economy to family relations and paternal authority - should be enacted. The first volume, which looked at the general rules of the science of legislation, was a precursor to constitutional documents like the US Bill of Rights, and was said to have influenced Benjamin Franklin.

But perhaps one of the most overlooked aspects of the Enlightenment is the reformation that happened in the Catholic Church, led by Rome. One of the most powerful ideas put forward by enlightenment thinkers was that the pope should no longer act as an absolute supranational monarch - one of the biggest factors to have sparked the Protestant Reformation. Instead, the pope should be more of a spiritual guide and the Church should be governed, as historian Ulrich L Lehner put it, in a more "collegial" fashion. Although it came out of Roman intellectual circles, this was an idea that was popular across the entire European Catholic community. This was particularly so in England where, as Lehner describes, Catholics had to "defend their faith against the accusation that they were subjects of a foreign tyrant, the pope".

One of the biggest concessions came in 1773 when Pope Clement XIV issued the bill *Dominus ac Dedemptor*, disbanding the Jesuits. Having been expelled from other Catholic countries, they were finally disbanded due to having become associated with all the excesses of the monarchical papacy.

Despite all of this, the Italian states were largely unreformed by the end of the 18th century. While the horrors of the French Revolution appeared to encourage greater parliamentary reform in Britain, those in charge across continental Europe pushed back against greater reform, frightened of where it might end up. It was feared that the constant famines and war might lead to a revolt of the peasantry, but it never came.

It can be argued that the Italian Enlightenment was largely a failure. While there were many great Italian thinkers and writers during the 18th century and there were some changes, the underlying problems of the Italian states were not properly unified or reformed until the rise of figures like Garibaldi, Napoleon and King Victor Emmanuel II in the 19th century.

The Haskalah

Some members of the Jewish intellectual elite were keen to embrace the currents of 18th-century philosophy

Words by Jon Wright

"We find in them only an ignorant and barbarous people who have long united the most sordid avarice with the most detestable superstition, and the most invincible hatred for every people by whom they are tolerated and enriched." Such was Voltaire's venomous summation of Judaism in his *Philosophical Dictionary* of 1764.

It might be argued that Voltaire was fulminating for rhetorical or satirical effect. It has also been suggested that his criticisms should be seen as part of a more general attack on what he perceived as any variety of overly dogmatic belief. But while it's true that Voltaire occasionally had slightly gentler words to say about Judaism, the splenetic outbursts came thick and fast and can hardly be ignored. Jewish people, he wrote elsewhere, "are, all of them, born with raging fanaticism in their hearts".

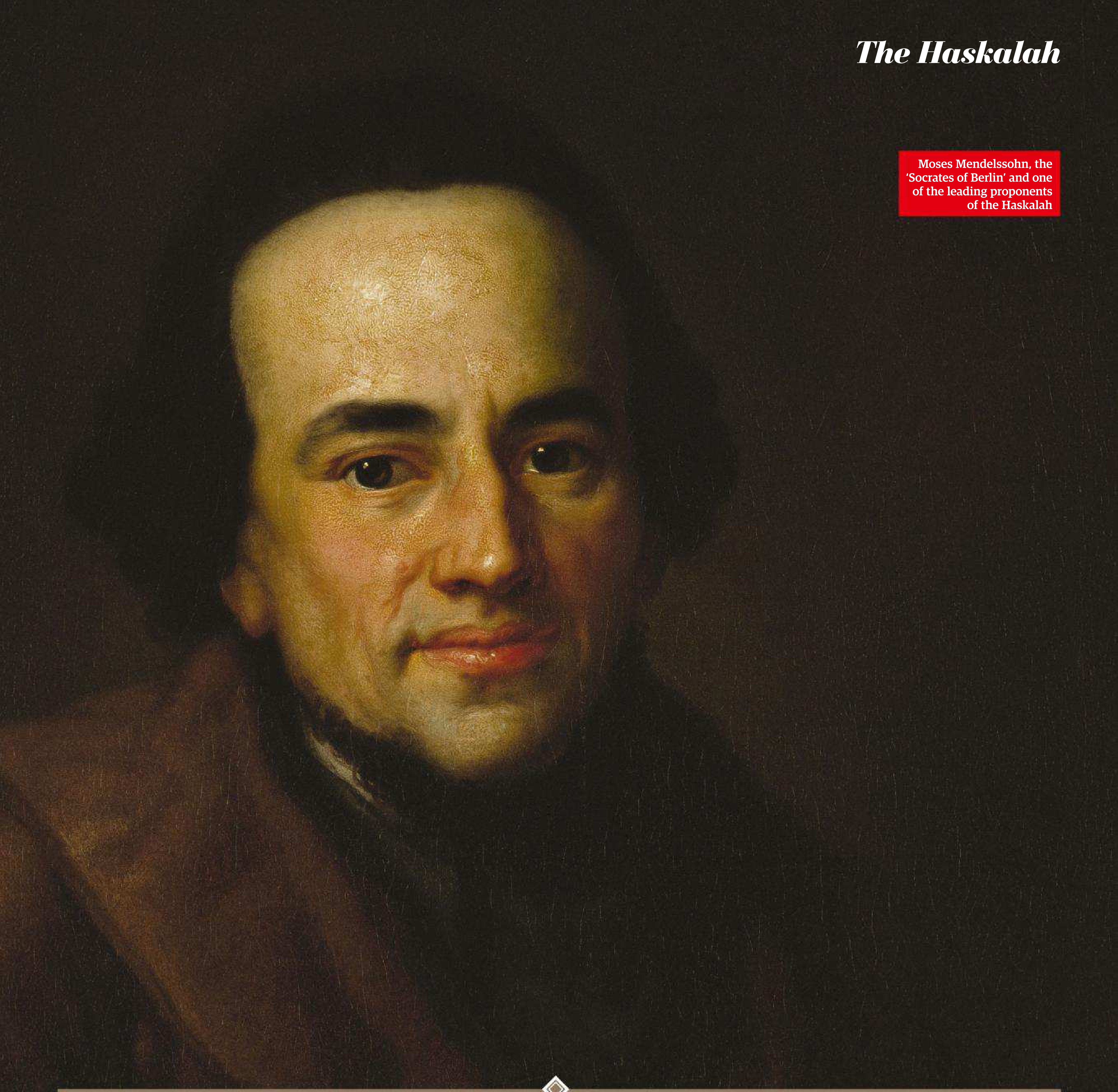
Such ugly rants were far from uncommon in the self-styled 'Age of Lights', and they reflected hostile, prejudicial attitudes that often trapped Europe's Jews (numbering perhaps 1.5 million by 1800) in a position of civil disenfranchisement, cultural oppression, financial disadvantage and geographical segregation. Even a thinker such as Rousseau, who expressed some admiration for Judaism's resilience, regarded the religion as separate, as other, as a "singular nation". All too rare were the sentiments expressed by Christian Konrad Wilhelm von Dohm, who suggested to his fellow Christians that "Jews should be considered as their brothers and fellow humans who are attempting to find God's favour by another route."

Despite such attitudes and obstacles, many Jewish intellectuals saw great potential in the more positive trends of Enlightenment thought. They are often identified as members of a movement called the Haskalah. Put in the broadest terms, there were efforts to embrace many of the ideals of 18th-century philosophical discourse - rationalism, free enquiry and so forth - and to seek closer integration into European society.

This, it was argued, would revitalise the whole of Jewish culture and provide the best route towards securing long-desired rights and freedoms. The virtues - or vices - of such a strategy would be hotly debated well into the 19th century and would generate both intellectual vigour and deep division within Jewish communities across the entire continent.

Traditionally, the wellspring of a Jewish Enlightenment has been located in Prussia: chiefly in cities such as Königsberg and Berlin. Here, Jewish intellectuals and a burgeoning middle class were already playing a significant role in cultural life but, for figures such as Moses Mendelssohn, bolder initiatives were required. It was necessary to position Judaism as a supremely rational faith, and to encourage Jewish interaction with new ventures in science and letters. Local vernacular languages were to be embraced, and the use of Yiddish - "ridiculous, ungrammatical and a cause of moral

> "Even a thinker such as Rousseau, who expressed some admiration for Judaism's resilience, regarded it as separate, as other"



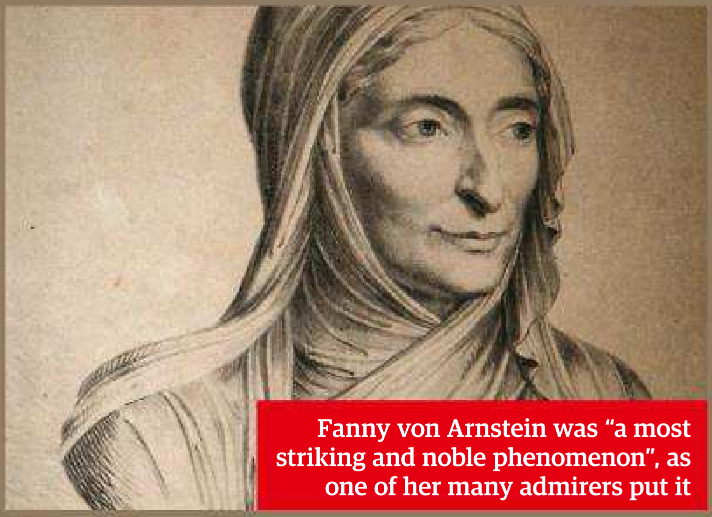
Moses Mendelssohn, the 'Socrates of Berlin' and one of the leading proponents of the Haskalah

Life in the salon

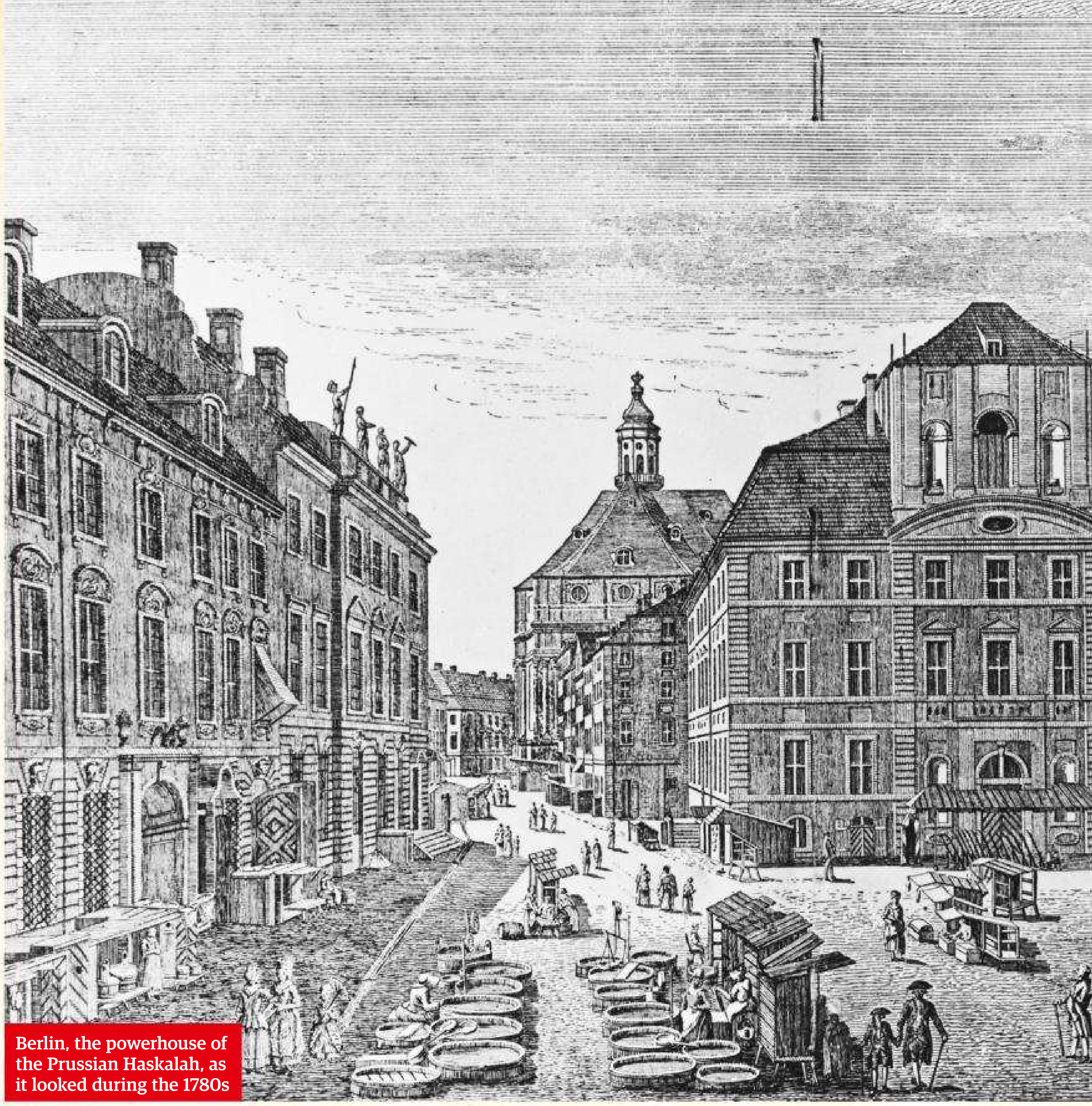
A series of extraordinary Jewish women played starring roles in the intellectual life of 18th-century Germany and Austria

The Haskalah, not untypically for the time, was usually a male-dominated affair. Moses Mendelssohn, for all his advanced views on many topics, displayed a rather conservative attitude towards female intellectual pursuits.

Such chauvinism did not prevent the emergence of an impressive coterie of Jewish women who oversaw some of Central Europe's most glamorous intellectual salons. Berlin was one hot spot for such gatherings, and figures like Henriette Herz and Sara Levy would play host to a dazzling array of philosophers, artists and writers. They were mostly men, but the level of (still limited) interaction between Jewish and Gentile thinkers was ground breaking. In Vienna, the salon led by Fanny von Arnstein welcomed, among many other luminaries, Admiral Nelson, the duke of Wellington and Mozart.



Fanny von Arnstein was "a most striking and noble phenomenon", as one of her many admirers put it



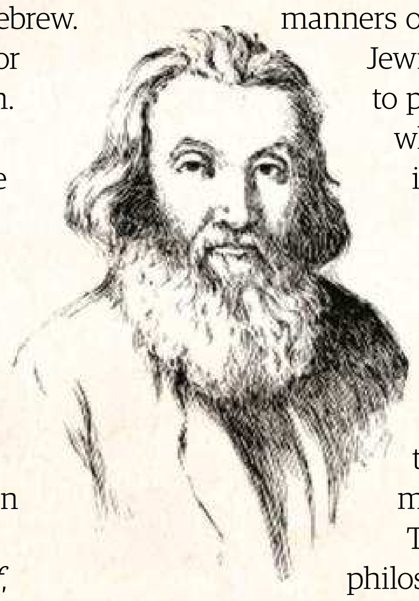
Berlin, the powerhouse of the Prussian Haskalah, as it looked during the 1780s

corruption," according to Mendelssohn - was to be frowned upon.

Proponents of this middle-European variant of the Haskalah were keen to stress that they were not abandoning their Jewish heritage. On the contrary, they insisted, the intricacies of Jewish history were being explored and, as well as advocating the acquisition of German, they sought to refine and re-energise the use of biblical Hebrew. They saw themselves as redefining or reshaping the parameters of Judaism. Education played a key role. Moving beyond study of the Talmud and the restrictions of rabbinical authority, they advocated broader, more secularised curricula: a trend encapsulated by the foundation of the Berlin Freischule in 1778. Print media were also pivotal.

Mendelssohn himself produced a hugely influential German translation of the Pentateuch in the early 1780s and the monthly journal *Ha-Me'assef*, founded in 1783 by Isaac Euchel, set a trend for journalistic endeavour that would come to define the Haskalah. Through the labours of men like Naphtali Herz Wessely, plays, poems, novels and satirical works flooded from the presses.

Such developments were not without controversy. The Haskalah pursued two key objectives: encounter with mainstream European culture and, simultaneously, the preservation and what it deemed to be the 'improvement' of Jewish intellectual and moral life. For some observers this was a difficult balance to strike, especially when the goals of some of the more radical assimilationists seemed to strike at some of the fundamental aspects of traditional Jewish culture. Was it really wise to pay less attention to age-old rules of ritual observance or adopt the dress and manners of the dominant culture?



Jewish critics of the Haskalah were quick to point out that integration was precisely what Christians had always demanded in return for the granting of more extensive Jewish rights and freedoms. Even many of the 18th-century thinkers who expressed sympathy for the plight of Jewish communities often spoke, in rather condescending terms, of helping Jews to improve their lot, of making them 'useful' members of society.

The German dramatist and philosopher Gotthold Lessing, a close friend of Mendelssohn, wanted to 'modernise' the Jews for their own good. John Toland was an active campaigner for Jewish rights in Britain and Ireland but he still regarded many Jewish practices and rituals as stumbling blocks to their acceptance by Christian societies. Some within the Jewish community wondered if the Haskalah was an attempt to play by rules set by those outside the Jewish faith. Such debates became even more

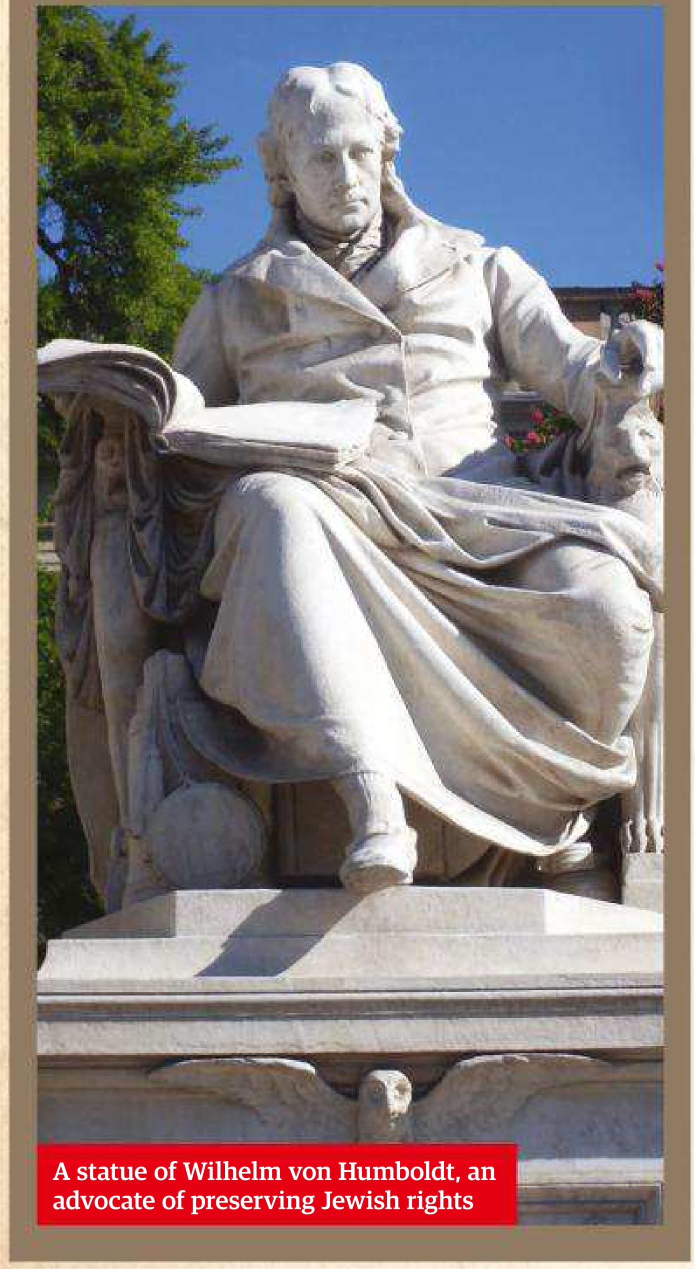
Emancipation

The 16th century brought in new freedoms for the Jewish people

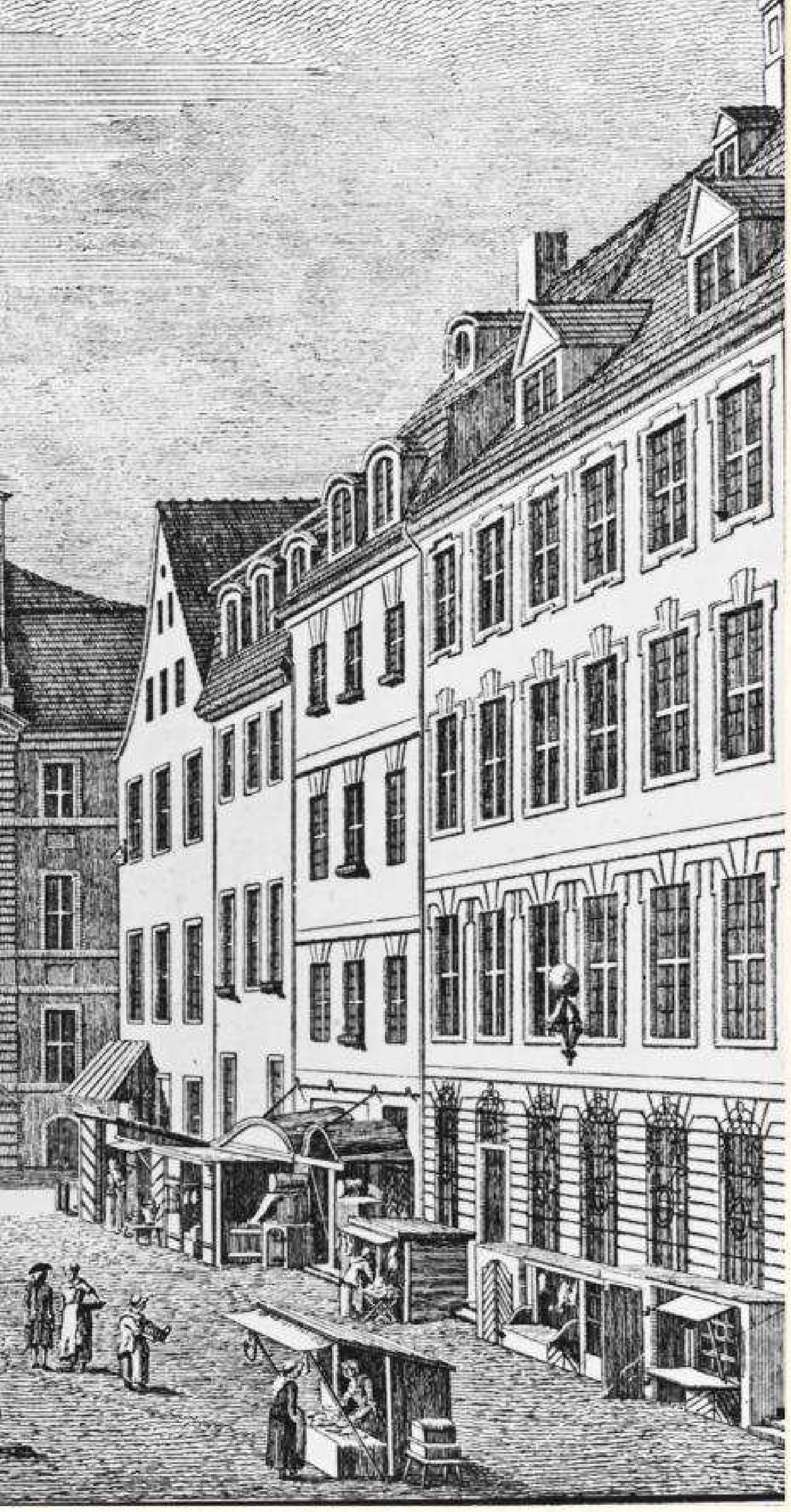
The Haskalah was often linked to securing greater rights and freedoms for members of Europe's Jewish communities – a cause that made significant, if fitful progress during the Enlightenment era. In 1753, hopes were raised by the passing of an act in the British parliament that allowed Jews to apply for naturalisation. Regrettably, fierce opposition led to the act's repeal after only a year.

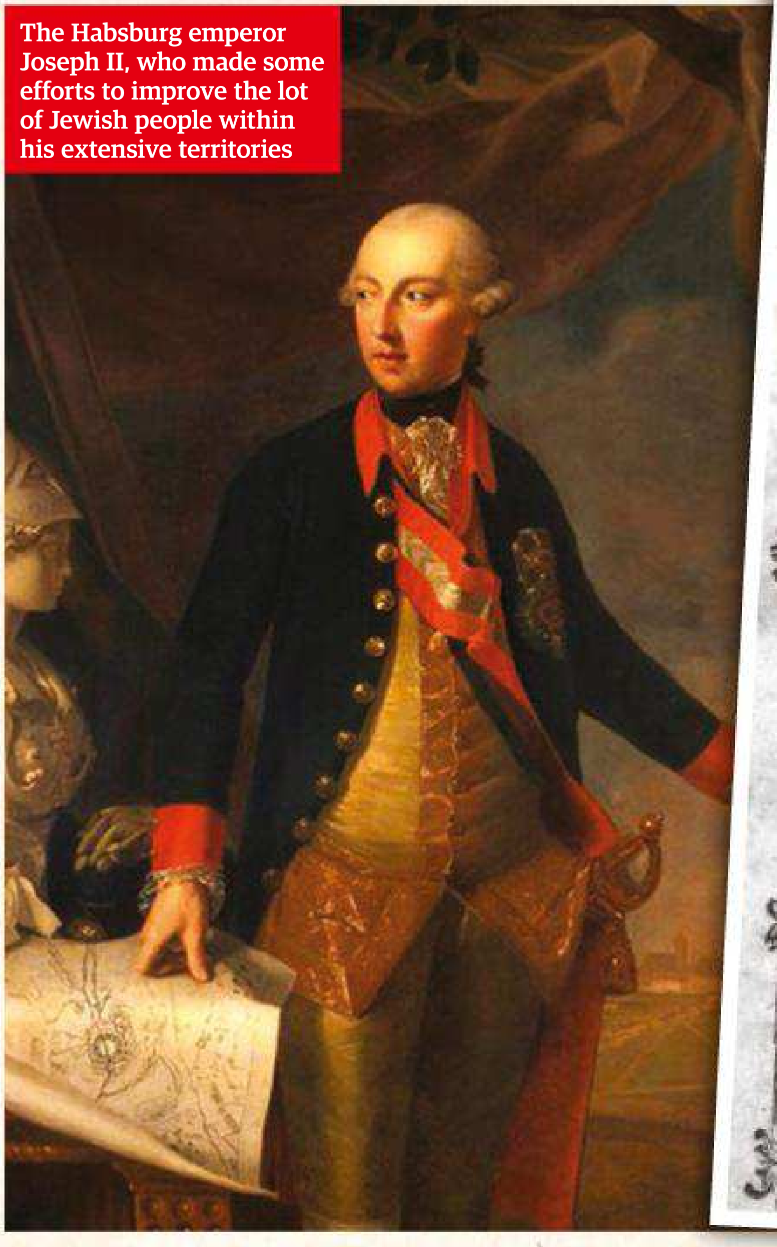
Under the Habsburg emperor Joseph II, a series of toleration patents and edicts emerged during the 1780s that removed some of the obstacles to Jewish involvement in education and trade, but they left other restrictive measures in place. The French Revolution is often credited with furthering the cause of Jewish freedom and, indeed, a landmark edict of emancipation was issued in 1791.

Over the coming decades, such measures followed in the wake of invading French armies. Laws would be passed in the Netherlands (or the Batavian Republic as it was then known) in 1796, Westphalia in 1808 and Prussia in 1812. Despite the limited successes of figures such as Wilhelm von Humboldt, not all of these legislative advances survived the discussions at the post-Napoleonic diplomatic congresses.

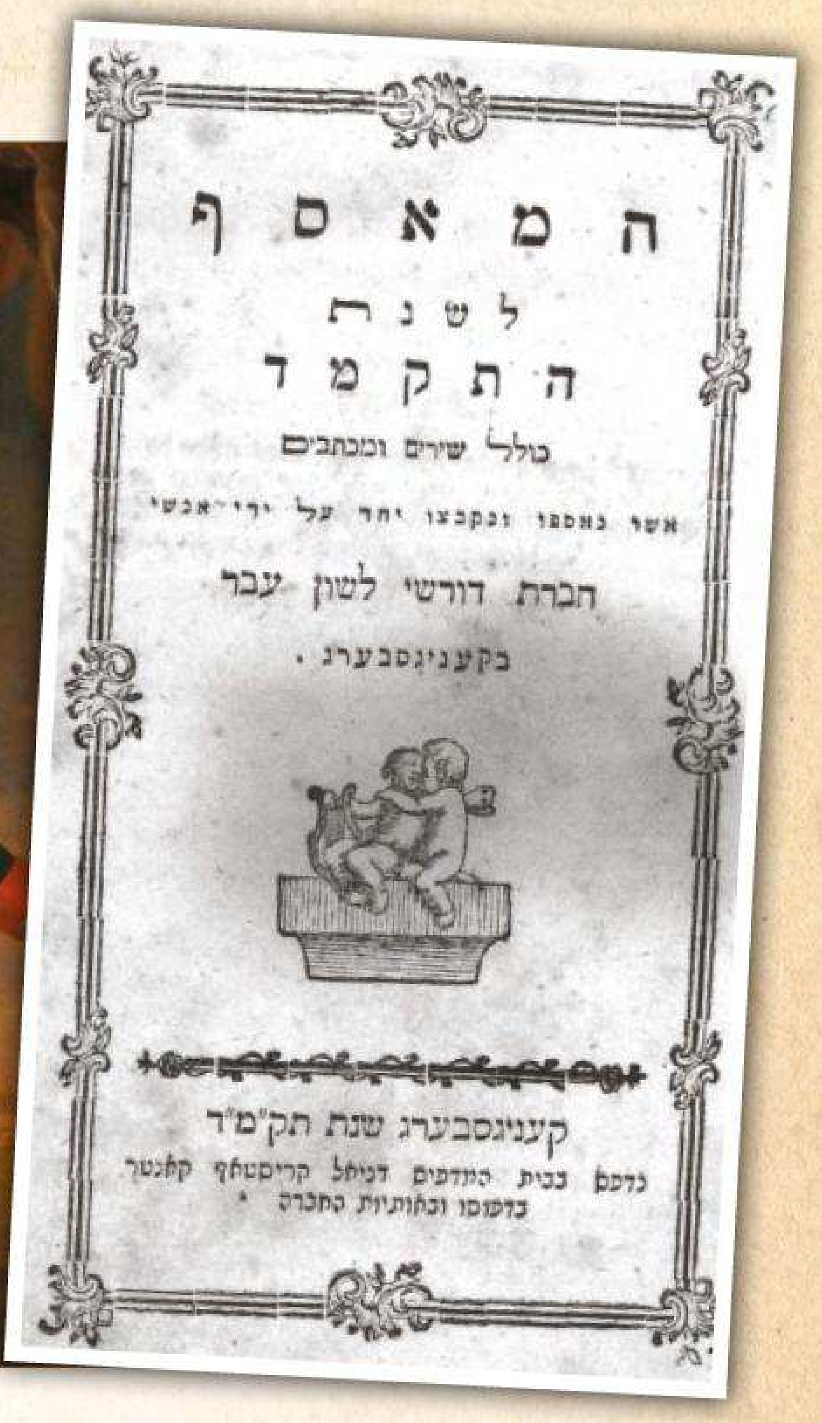


A statue of Wilhelm von Humboldt, an advocate of preserving Jewish rights





The Habsburg emperor Joseph II, who made some efforts to improve the lot of Jewish people within his extensive territories



המאסף
לשנת
התקמד
כולל שירים ומכתבים
אשר נאספו ונקבצו יחד על ידי אנשי
חברת דורשי לשון עבר
בקעניגסבערג.

קעניגסבערג שנת תק"מ"ד
נדפס בבית המדפיס דניאל קריסטאף קאנטער
בדפוסו ובאותיות החברה.

rancourous as the encounter with Enlightenment moved eastwards.

Prussia may have been one of the most vibrant points of encounter between Judaism and Enlightenment ideas but it was by no means unique. Precursors of figures such as Mendelssohn are not hard to locate, and cities like Amsterdam, Bordeaux and Livorno had long been home to relatively integrated Jewish communities. Similarly, we should not assume that the eastward expansion of the Haskalah was simply a matter of the Prussian model being exported to places such as Galicia, the Polish-Lithuanian Commonwealth and Russia.

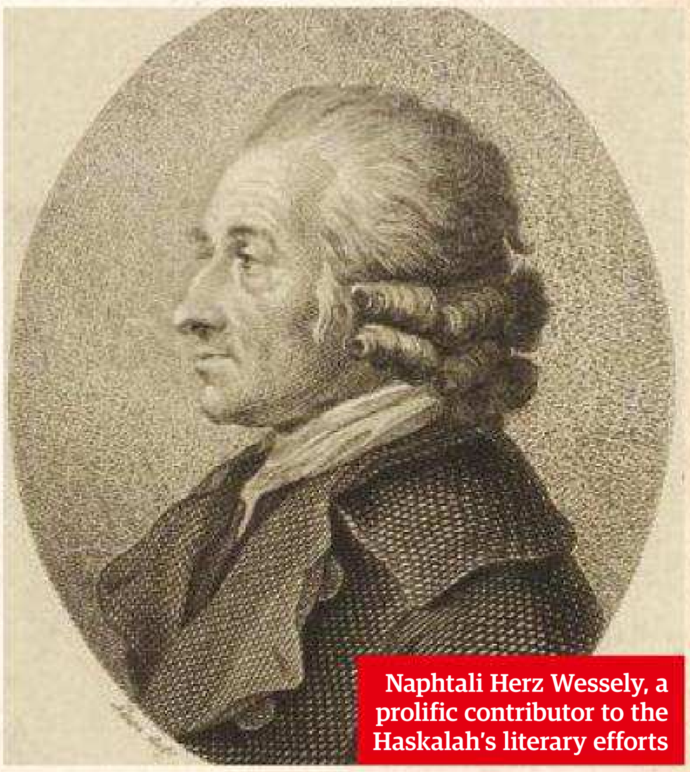
It is certainly true that events in central Europe created an important legacy. One of Mendelssohn's 19th-century admirers wrote of how "from the radiance before him a brightness would appear to the Jews of Russia and Poland, too, and a new light would shine upon them". Common themes, such as the role of schools and publications, also emerged during the first decades of the 19th century, but leading figures in Galicia and Russia like Isaac Baer Levinsohn, Joseph Perl, and Nachman Krochmal were not simply passive recipients of the ideas spread by their Prussian predecessors.

Just as importantly the cultural landscape they inhabited was markedly different. Berlin's tradition of an assertive Jewish intelligentsia was often lacking, and the eastern Haskalah tended to fare better in urban centres such as Odessa, Lviv, Vilna and Ternopil. Another major point of distinction was the tendency to reject the Prussian hostility to Yiddish in intellectual pursuits: in more eastern locales it was often deemed eminently sensible to use the language because this allowed the wider circulation of Haskalah ideas. Long after the Haskalah began to lose steam in central Europe, its impact on places like Russia endured, remaining significant until the late 19th century, but it also encountered sustained criticism.

The Hasidic tradition stressed other, more orthodox ways of confronting the trends of modernity, and such tensions would play a major role in forging the conflict between Reform and Orthodox Judaism in the years to come. Followers of the mainstream Haskalah were often accused of undermining the rudiments of Jewish tradition, but this criticism was often exaggerated. Mendelssohn may have positioned himself as a modern, German philosopher, but he made sure to always insist that Jews should never abandon their right to practice their faith in exchange for other civil privileges. At the same time, Levinsohn's influential book *A Warning to Israel*, published in 1827, went out of its way to place the Haskalah in the context of ancient Jewish tradition.

We should also be cautious of overstating the impact of the Haskalah on 18th- and 19th-century Jewish culture: it was, for the most part, the province of an intellectual elite. Other trends - increased urbanisation and industrialisation - were every bit as important in defining Judaism's response to the modern world. The Haskalah was undoubtedly one of the most intriguing results of the era's intellectual ferment: not merely some branch or imitation of the Enlightenment, but a dynamic, if divisive movement in and of itself.

It is telling that while followers of the Haskalah demanded entry into contemporary intellectual arenas from which they had often been excluded, they also sought inspiration from a Jewish rationalist tradition that stretched back over centuries. The 12th-century Jewish philosopher Maimonides was often invoked as an illustrious forerunner, and this was a pedigree that matched anything that gentile Enlighteners had to offer.



Naphtali Herz Wessely, a prolific contributor to the Haskalah's literary efforts

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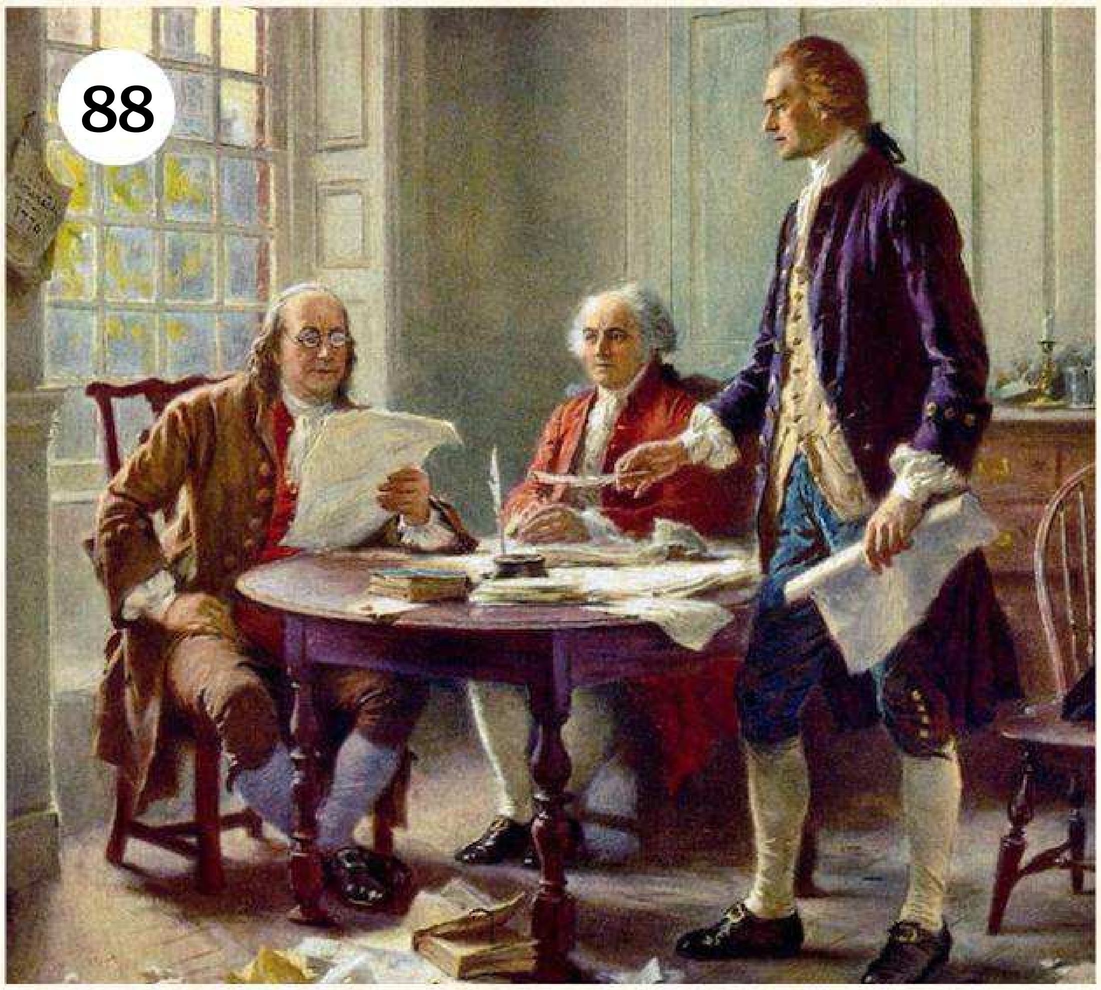

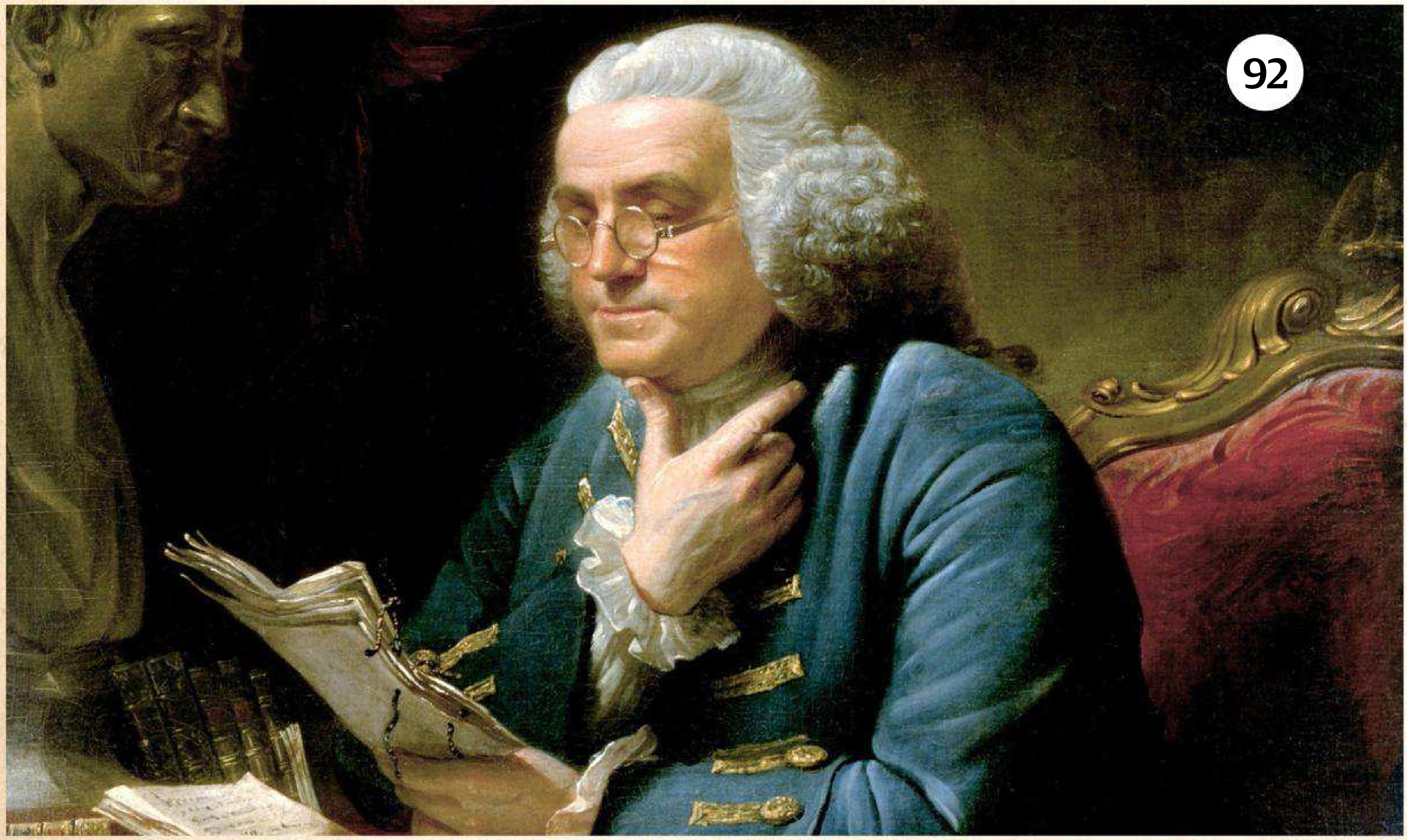

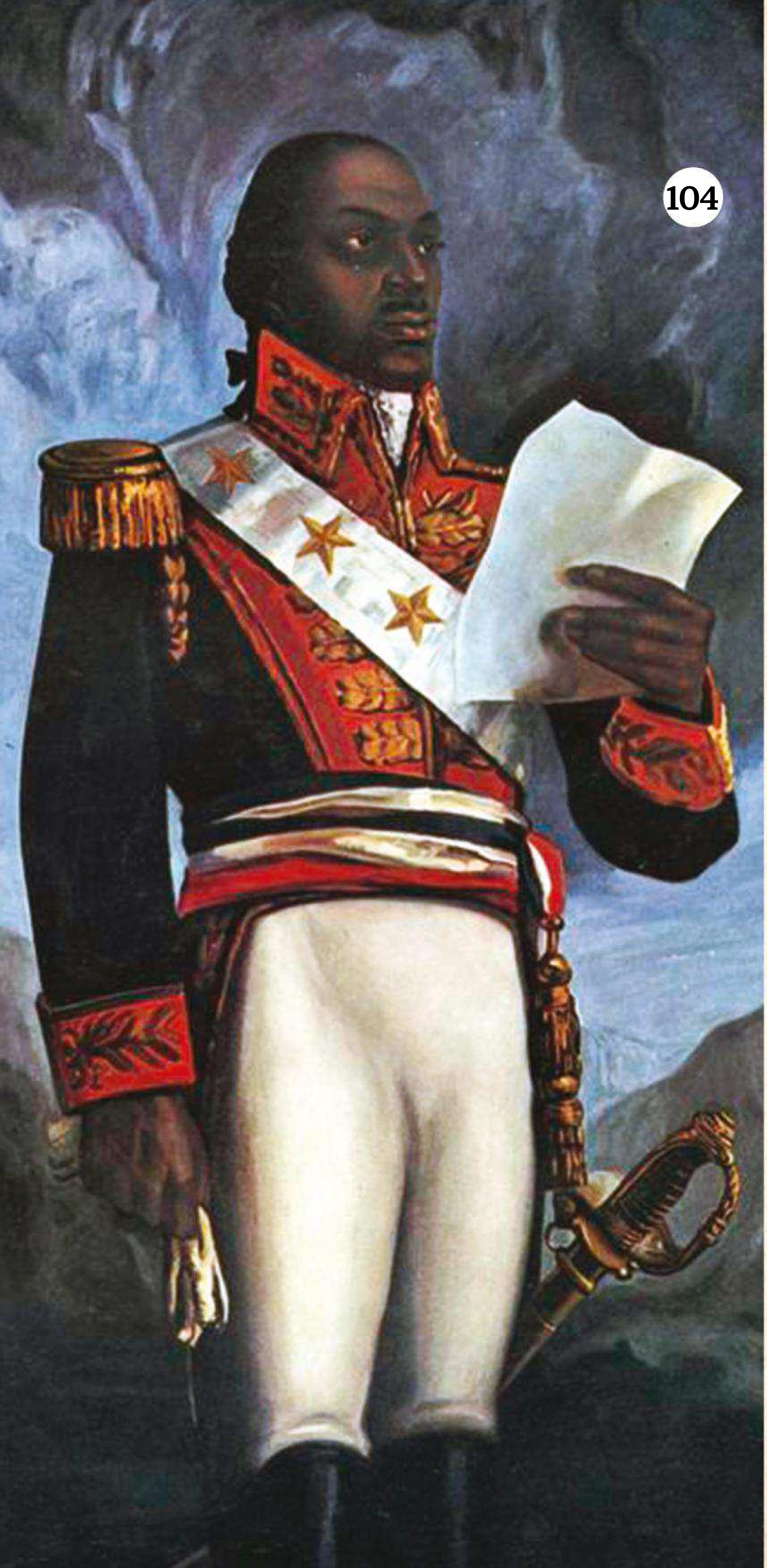

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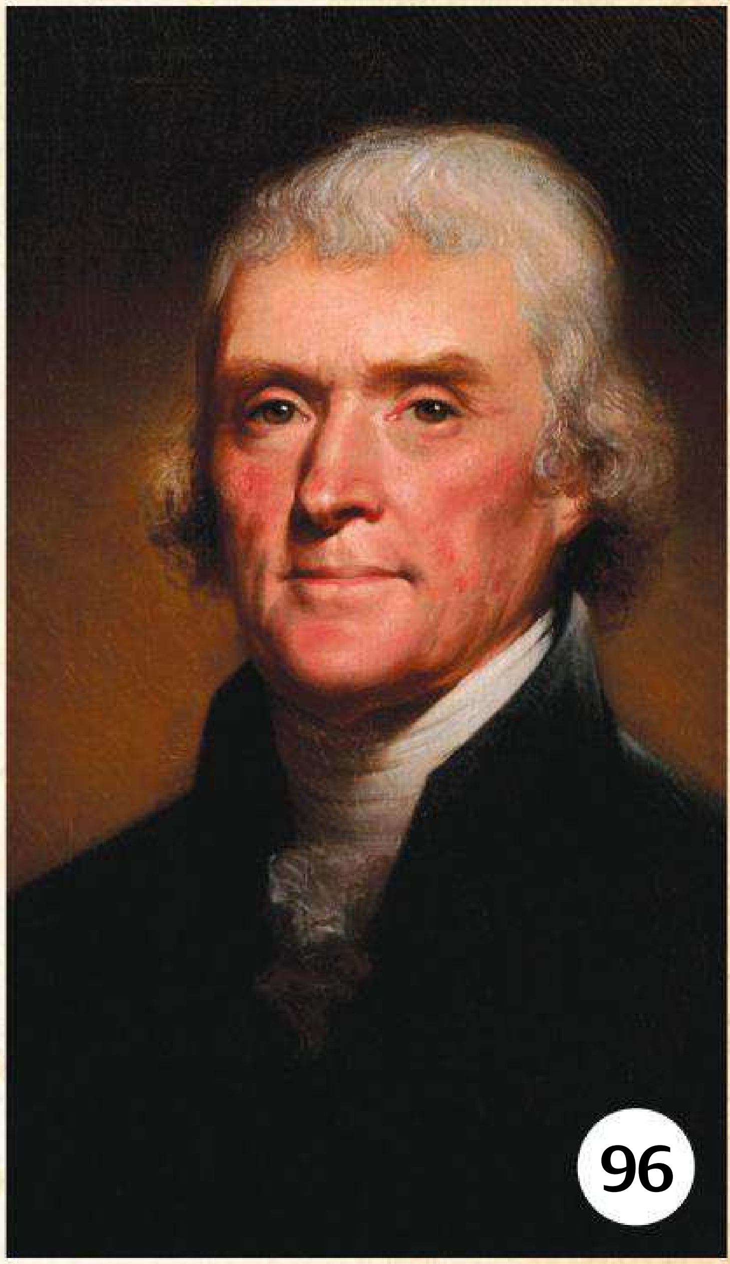

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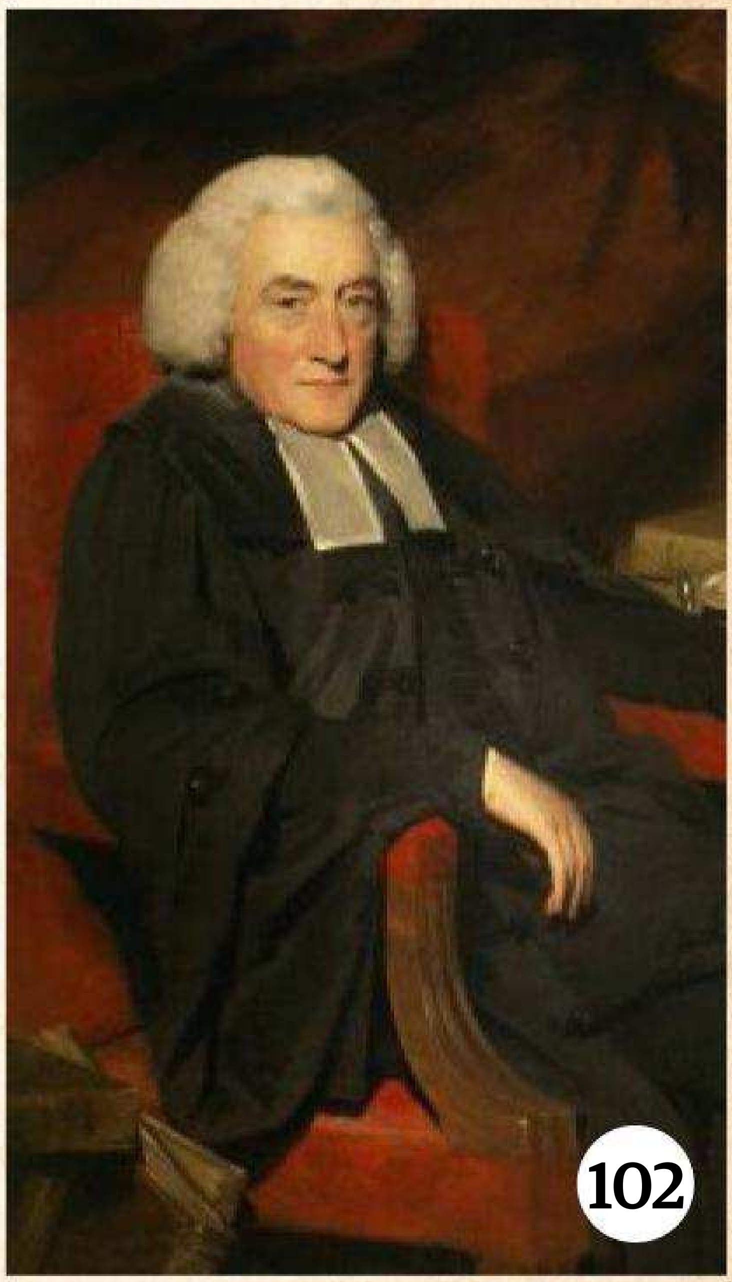

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Revolution in America

The ideals of the Age of Enlightenment exerted significant influence on the Founding Fathers and the birth of the United States

Words by Mike Haskew

The wave of discovery, philosophical thought, emphasis on the arts and literature, and elevation of the sciences during the Age of Enlightenment touched every aspect of the human condition. Rooted in contrast to the over-arching control and exploitation of the people as expressed in monarchs who ruled by the 'Divine Right of Kings' and the institution of the Church, particularly the Roman Catholic papacy, the Enlightenment, also called the Age of Reason, was revolutionary in itself.

However, perhaps its greatest and most lasting impact came with the reassessment of basic human rights and their relevance in the lives of the common people. When Thomas Jefferson penned the Declaration of Independence, a manifesto of rational reasoning for a separation of the 13 former British colonies in North America from the Crown, he was undoubtedly influenced by the enlightened scholars and philosophers of Europe.

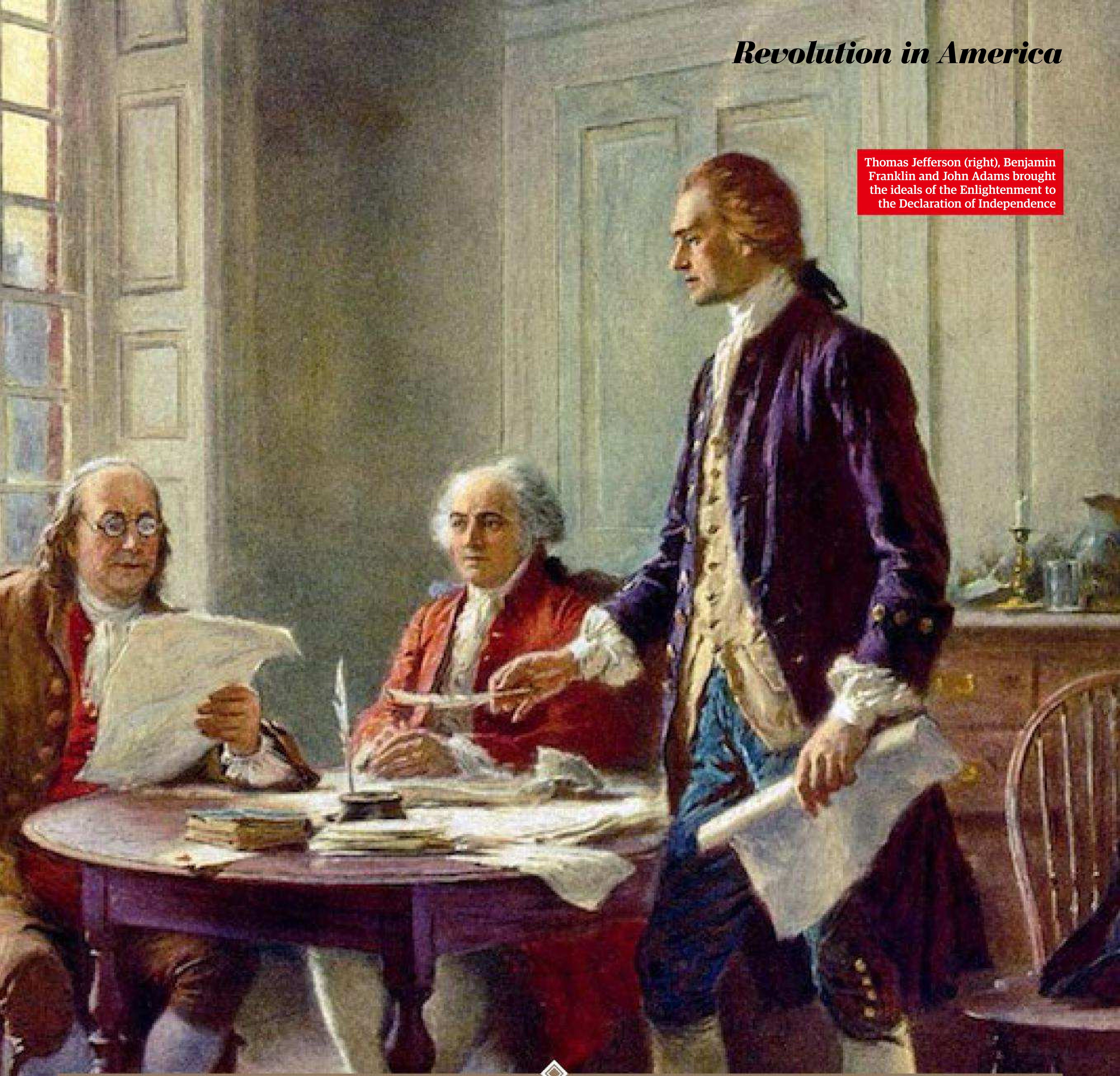
Jefferson was not alone. Several towering figures of the American independence movement, including John Adams, Benjamin Franklin, Thomas Paine, George Mason, James Madison and others were profoundly affected. Evidence abounds in their discourse, their correspondence and in the timeless documents they produced as a framework for the new nation's government.

The American perspective of the Enlightenment was shaped in large part by the educational experience of its future revolutionary leaders. The influence of the university professors who brought forward the ideas of Isaac Newton, John Locke, Jean-Jacques Rousseau, Charles-Louis de Secondat, Baron de Montesquieu, Voltaire, and other European luminaries of the age cannot be denied.

In his youth, Adams was introduced to Enlightenment thinking at Harvard University, where he was fascinated with the emergence of innovative perspectives on numerous fields of study, particularly mathematics, astronomy, and philosophy. He wrote that "modern discoveries" in these fields had distinguished the current epoch from earlier times and "done Honour to the Human Understanding" while demonstrating "the true sphere of Modern Genius".

Adams' sense of justice led him to defend the British soldiers accused of murder following the Boston Massacre of 1770, risking his own reputation as a matter of principle. He saw the developing American experience as separate from Europe and cited the events of his time as "exceptional" in the evolution of a national character. In practice, he opposed the extension of the British Admiralty Court authority during the controversy over the Stamp Act of 1765, primarily because the measure suspended the right of the accused to a jury trial, a basic civil liberty. He argued that colonial legislative bodies should be responsible for the development of their own new laws.

> "Thomas Jefferson was influenced by the scholars and philosophers of Europe"



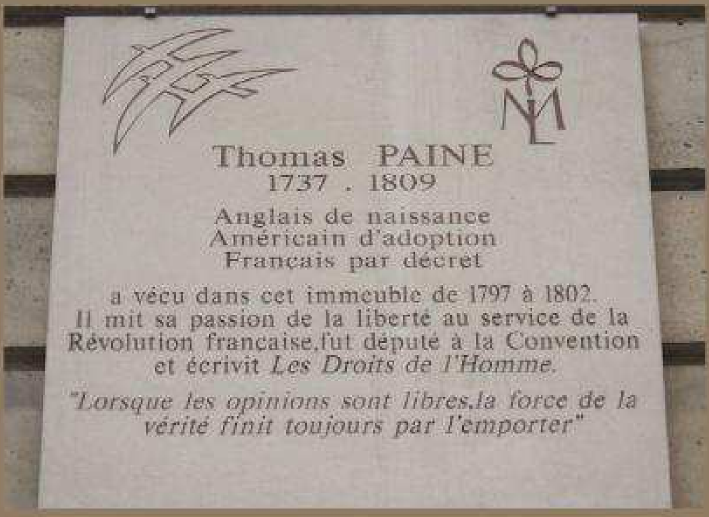
Thomas Jefferson (right), Benjamin Franklin and John Adams brought the ideals of the Enlightenment to the Declaration of Independence

Post-Revolution Thomas Paine

A most eloquent statesman of enlightened principles, Thomas Paine participated in the European upheaval of the late 18th century

British-born Thomas Paine, whose fervour stoked the fire of the American Revolution, left the country for Europe after the conflict. He travelled to Britain and France and became captivated by the events of the French Revolution. He engaged in a debate with conservative Edmund Burke, who wrote *Reflections on the Revolution in France* in 1790, and published a rebuttal, *Rights of Man*, in 1791. Paine's fiery pen assailed the concept of monarchy and other social traditions in an attempt to justify the French struggle.

Paine ran afoul of the British government and was indicted for seditious libel, tried in absentia and found guilty – effectively banished from Great Britain. In contrast, he was granted honorary French citizenship. He served in the National Convention but was later arrested and imprisoned, narrowly avoiding execution.



Thomas PAINE
1737 . 1809

Anglais de naissance
Américain d'adoption
Français par décret

a vécu dans cet immeuble de 1797 à 1802.
Il mit sa passion de la liberté au service de la
Révolution française,fut député à la Convention
et écrivit *Les Droits de l'Homme.*

"Lorsque les opinions sont libres,la force de la vérité finit toujours par l'emporter"

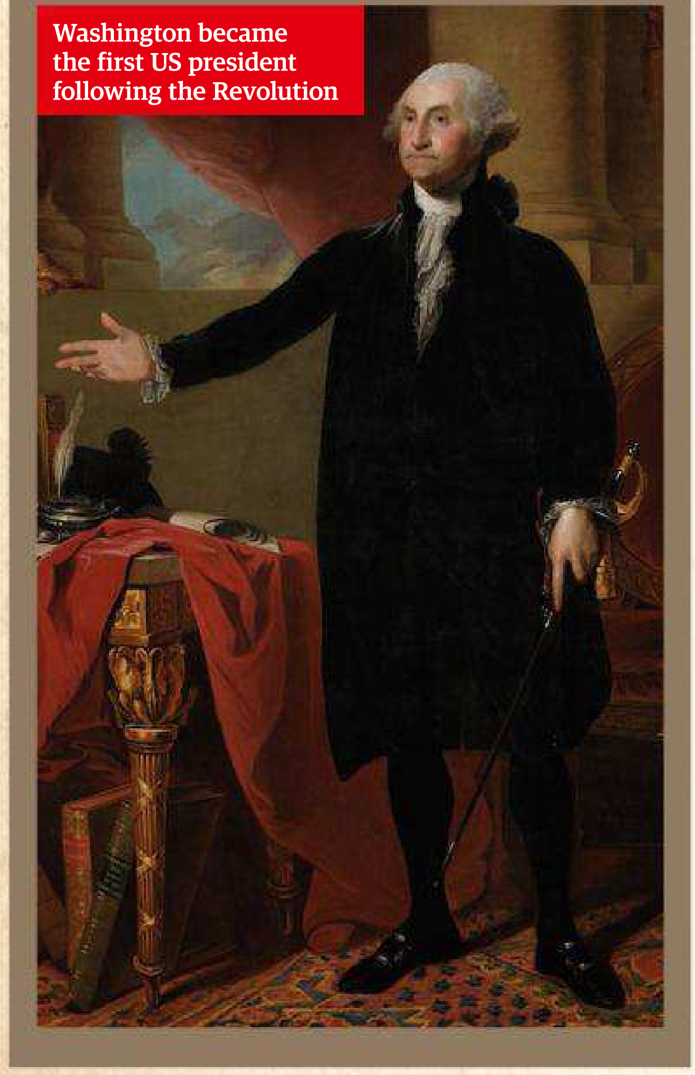
An American King George?

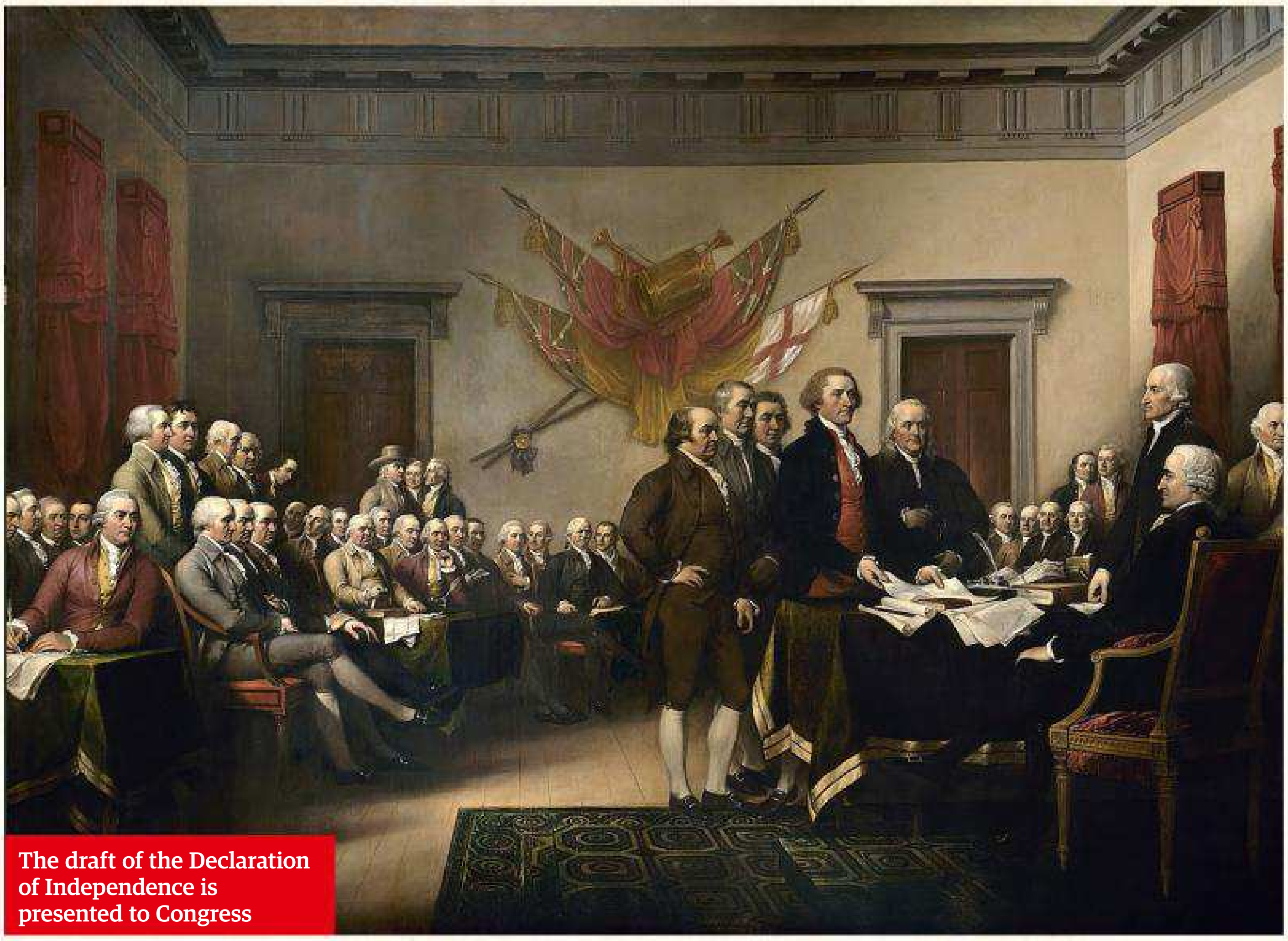
George Washington declined to proclaim himself king of the United States and reluctantly became the first president

As the factionalism of political parties emerged in post-Revolutionary America, George Washington, hero of the war for independence, was dismayed. He was the only statesman who commanded the respect of all those assembled at the Constitutional Convention in 1787 and served as its president.

In turn, he became the first president of the United States, although he would rather have lived out his days in peaceful retirement. Instrumental in the adoption of the Constitution, he served two terms as president, and his force of character helped the young nation to establish a firm foundation of government.

Washington's greatest contribution to the future of the United States and the perpetuation of the ideals of the Enlightenment was his refusal to take or to accept the powers of a monarch. On more than one occasion, he might have followed the historical precedent of a victorious general that was subsequently crowned king. A sometimes disenchanted military would probably have supported such a move, and the people would likely have followed. But Washington refused to corrupt the ideals for which the revolution had been fought. When he left the office of president and voluntarily surrendered the reins of power, King George III of Britain observed that Washington possessed "the greatest character of the age".


Washington became the first US president following the Revolution


The draft of the Declaration of Independence is presented to Congress

In bringing issues of law and administration in the colonies to the forefront, Adams enhanced the influence of enlightened thinking on the establishment of the new government. He remained true to such ideals throughout his lifetime, and half a century after the American Revolution wrote to his political rival and friend Thomas Jefferson that the 18th century had been the "most honourable to human Nature". He noted that "knowledge and Virtues were increased and diffused".

With the brisk trade that took place between Europe and America, a free flow of goods - and ideas - crossed the Atlantic Ocean continually. The framers of the Declaration of Independence and later the US Constitution availed themselves of the most influential publications of the period written by the 'philosophes', the collective term attributed to those scholars and philosophers who opened the discussion concerning individual liberty and democracy. At the same time, the emergence of a uniquely American national identity added to the blend of enlightenment and patriotism.

Jefferson's Declaration states, "We hold these truths to be self-evident, that all men are created equal, they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness." The ring is quite similar to that of Locke's *Second Treatise of Civil Government*, which asserts that men are all "free, equal, and independent". He wrote, "Man being born, as has been proved, with a title to perfect freedom, and an uncontrolled enjoyment of all the rights and privileges of the law of nature, equally with any other man, or number of men in the world, hath by nature a power, not only to preserve his property, that is, his life, liberty and estate, against the injuries and attempts of other men..."

In fact, Jefferson had originally used the phrase "Life, Liberty and Property" but substituted "pursuit of Happiness" in the final draft of the Declaration after committee review. The document echoes the sentiment popularised by Locke that when government becomes oppressive or stifles basic human rights, the people have the right to throw off its shackles. British taxation without colonial representation in parliament, among other perceived transgressions, presented just such a politically charged situation.

In the *Social Contract*, Rousseau makes the bold statement that "Man is born free, and everywhere he is in chains". Paine agreed. With great eloquence and in plain language that the common American could understand, he stated the case for revolution. He commented, "The most formidable weapon against errors of every kind is Reason. I have never used any other, and I trust I never shall." Although he eschewed the traditions of Christianity, Paine appealed to the Protestant foundation of colonial belief in a sermon-like manner.

Paine wrote a collection of the most influential pamphlets on American revolutionary thought. The first, *Common Sense*, consolidated the rationale for change. He criticised the British government for its institutions of a privileged monarchy and peerage that ruled only by implied or inherited authority. He argued for a democratic form of government and railed, "In England a king hath little more to do than to make war and give away places; which in plain terms, is to impoverish the nation and set it together by the ears. A pretty business indeed for a man to be allowed 800,000 sterling a year for, and worshipped into the bargain! Of more worth is one honest man to society and in the sight of God, than all the crowned ruffians that ever lived."

During the early days of the Revolutionary War, Paine published a series of pamphlets titled *The American Crisis*, boosting the morale of the public in the midst of military setbacks and reminding the people of the magnitude of their endeavour. He declared, "These are the times that try men's souls: The summer soldier and the sunshine patriot will, in this crisis, shrink from the service of his country; but he that stands it now, deserves the love and thanks of man and woman." Three days before the pivotal Battle of Trenton, the text was read to soldiers of the Continental Army, reminding them that "Tyranny, like hell, is not easily conquered; yet we have this consolation with us, that the harder the conflict, the more glorious the triumph."

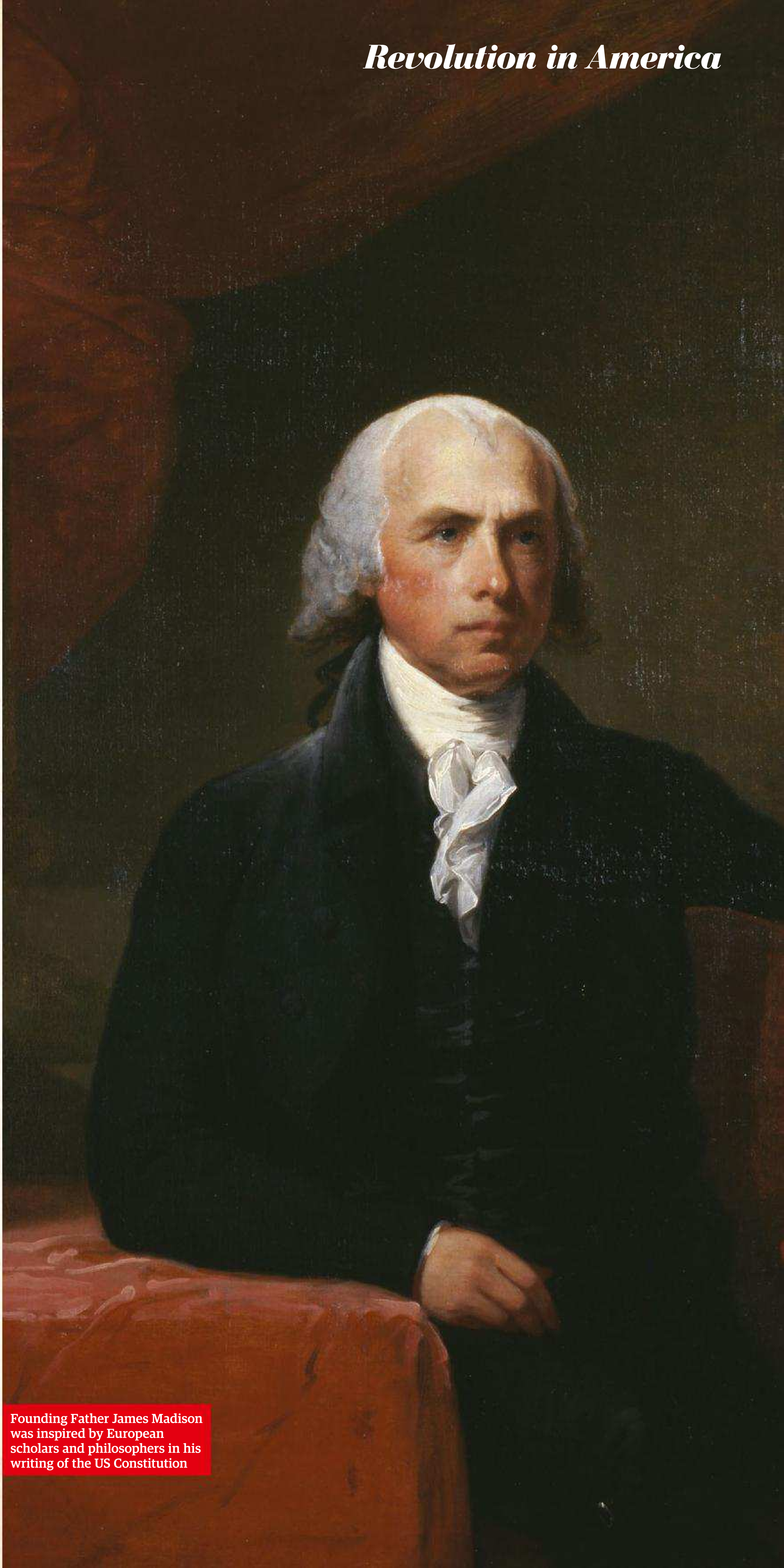
Montesquieu favoured the separation of powers, citing three branches of government: executive, legislative and judicial. Neither of these should have preeminence over the others, he reasoned. Such a division was the best framework for ensuring the legitimacy of government and the prevention of its becoming corrupt. He noted, "Were the executive power not to have a right of restraining the encroachments of the legislative body, the latter would become despotic; for as it might arrogate to itself what authority it pleased, it would soon destroy all the other powers." When James Madison served as principal author of the US Constitution in the years following the Revolution, Montesquieu's idea became a pillar of the document.

Still, opinions differed as to the role of government. Jefferson and other notable statesmen, including fellow Virginian Patrick Henry, opposed the adoption of the Constitution initially until assurances were received that a number of amendments would be made to guarantee individual liberties. Ten such amendments were subsequently included in the Bill of Rights. Jefferson was further concerned that those powers not specifically granted to the federal government should be reserved for the states. True to their enlightened perspective, these individuals feared the potential overreach of a centralised government. After all, they had only recently fought a war and gained independence from such oppressive rule.

The noble experiment in American democracy might well have failed in the absence of the Enlightenment. Its revolutionary perspectives on human existence and the interpretation of the freedom of mankind may today appear commonplace. However, in the embryonic stages it was bold and unique, its example to be followed more than a decade later in France and elsewhere.

An old story relates that as the elderly Benjamin Franklin was leaving the Constitutional Convention at Independence Hall in Philadelphia in 1787 a spectator inquired, "Well Doctor, what have we got? A republic or a monarchy?"

Franklin responded, "A republic if you can keep it." True enough, only time can provide the telling test of enlightened principles in practice amid an ever-changing societal environment.



Founding Father James Madison was inspired by European scholars and philosophers in his writing of the US Constitution

Benjamin Franklin

An enlightened American who lived a full life before he even became a revolutionary

Self-made media tycoon, pioneering scientist, globe-trotting statesman; Benjamin Franklin was all this and more, making him one of the most fascinating figures of the American Revolution. He was born on 17 January 1706 in colonial Boston and while he learnt to read at an early age, his formal education ended when he was ten. He worked with his father making candles and soap before becoming an indentured apprentice to his brother James, a printer. What little money he earned during this time was spent on books, which he fervently devoured, and he taught himself to write. But in 1722, the brothers quarrelled and Franklin ran away. He enjoyed adventures in New York City and London, but he eventually made his home in Philadelphia.

In 1728, aged 20, he set up a printers with a friend, Hugh Meredith. They landed the contract to produce Pennsylvania's paper currency, so were soon literally printing money. Their next venture was to buy a newspaper, which they renamed *The Pennsylvania Gazette*. While it principally ran classified ads, Franklin often contributed editorial content under various aliases. From 1732 to 1757, he also produced *Poor Richard's Almanack*, which sold very well for a pamphlet published in the American colonies, with print runs reaching 10,000 a year.

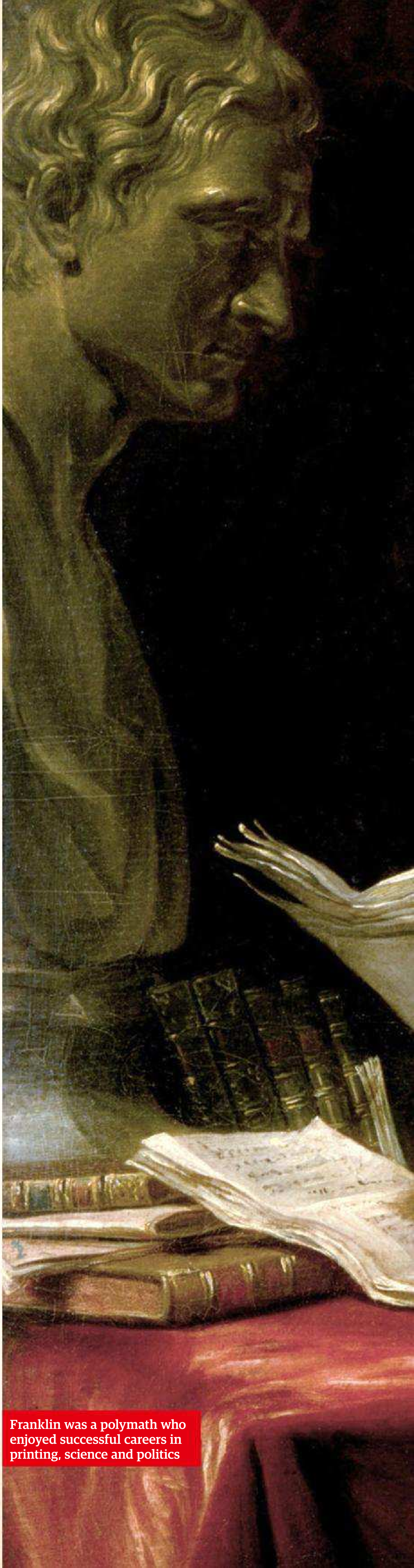
While not every project was a success, Franklin prospered. He bought out Meredith to become sole owner, and made enough to lend money with interest and to invest in rental properties, both in Philadelphia and many coastal towns.

By 1748, Franklin had expanded his printing business throughout the colonies, with partnerships and franchises as far afield as New York, the Carolinas and even the West Indies. Though not yet 50 years old, he could afford to retire. Rather than adopt the life of a leisured gentleman, Franklin, influenced by the Enlightenment that was coursing through Europe, pursued his interest in science. He famously flew a kite with a metal house key attached to it in a thunderstorm in June 1752. However, contrary to legend, he was not actually struck by lightning - such a blast would have killed him. Instead, the kite picked up the ambient electrical charge from the storm. To dispel another myth, Franklin did not discover electricity. Rather, he demonstrated the connection between lightning and electricity. Franklin was the first to publicise his findings, reporting on them in *The Pennsylvania Gazette*; though with uncharacteristic coyness, he reported the incident third-hand, never revealing that he had conducted the experiment.

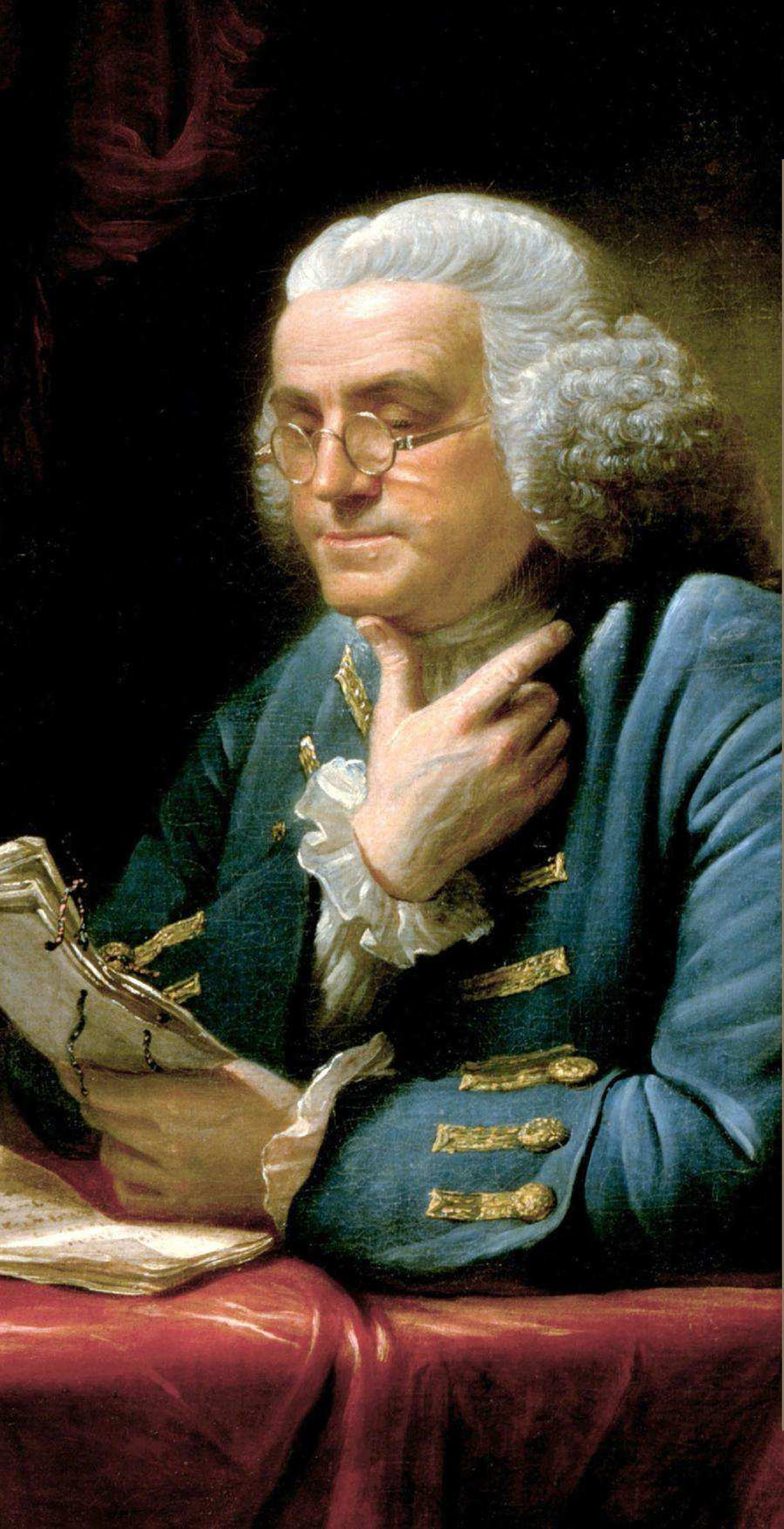
In the course of his lifetime, the inquisitive Franklin also studied ocean currents, meteorology, the causes of the common cold and refrigeration. In addition to the lightning rod, he invented a stove that provided more heat while using less fuel and bifocal spectacles, which allowed for both distance and reading use. While Franklin had already proved himself a consummate businessman, he didn't patent any of his inventions, believing that knowledge should be shared instead.

With that in mind, he established the Junto, also known as the Leather Apron Club. A debate society where men could gather to discuss natural philosophy, politics and business affairs, it was modelled on the coffee houses Franklin had visited in London. Members included his business partner Meredith, a runaway Oxford student named George Webb, an optician and inventor named Thomas Godfrey, and the future 'surveyor general' of Pennsylvania William Parsons.

Despite the success of his electrical experiments, Franklin never thought science was as important as public service. With the help of his Junto, he built a civic society for the citizens of Philadelphia, innovating new institutions that people around the world take for granted today. This included a fire brigade, a lending library, an insurance company, an



Franklin was a polymath who enjoyed successful careers in printing, science and politics



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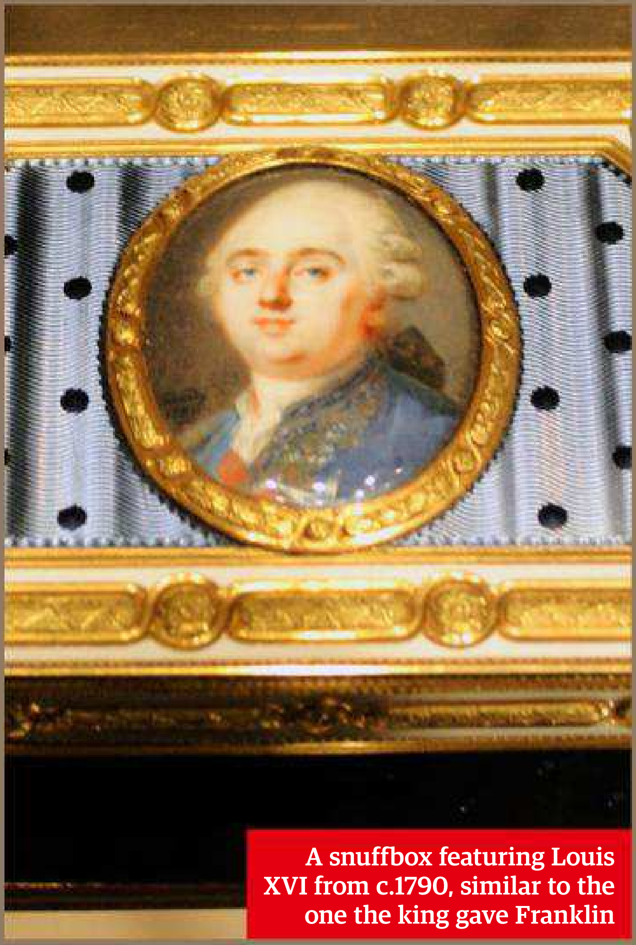
A gift that sparked disquiet

How a French present highlighted the new enlightened ways

When Franklin was set to leave Paris and return to Philadelphia in 1785, King Louis XVI requested to see him one last time. He gave the retiring ambassador a token of his appreciation, as was customary in France at the time. But Franklin's gift was more extravagant than most: he was given a gilded snuff box encrusted with over 400 tiny diamonds of the highest quality.

To the egalitarian revolutionaries in America, accepting such an elaborate present was a symbol of everything that was wrong with the corrupt monarchies of Europe. Many feared that Franklin would now be indebted to the French king and that other rich European powers – including the hated King George III – could also seek to insidiously 'buy' influence by bestowing such gifts on other officials. With this in mind, the Articles of Confederation, the precursor to the Constitution, outrightly banned American officials from receiving gifts from foreign powers. Aware of the law but afraid of offending America's greatest ally when it was needed most, Franklin put the dilemma before Congress.

The legislature ultimately approved the gift and Thomas Jefferson personally gave it his blessing, but the episode did not sit well with many American people. As a result, the framers added Article I, Section 9, Clause 9 – better known as the Emoluments Clause – to the Constitution. This stated that no American officeholder shall "without the consent of the Congress, accept of any present, emolument, office, or title, of any kind whatever, from any king, prince, or foreign state".



A snuffbox featuring Louis XVI from c.1790, similar to the one the king gave Franklin

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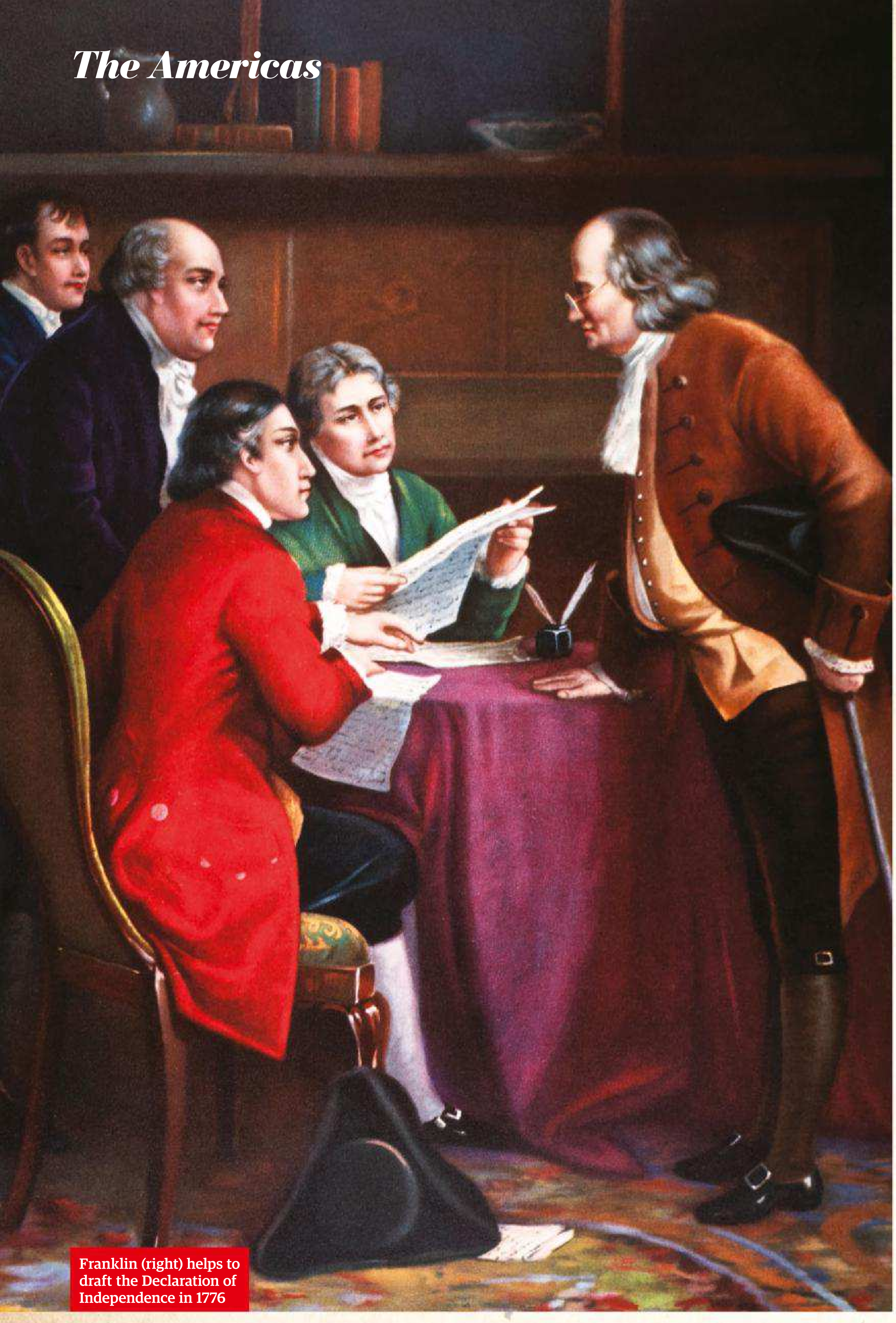


Franklin (right) helps to draft the Declaration of Independence in 1776

academy for children and a hospital. Official titles were quick to follow: Franklin became a member of the Philadelphia City Council in 1748, justice of the peace in 1749 and a city alderman in 1751. In 1753, he was appointed deputy postmaster general, in charge of mail in all of the northern colonies.

Perhaps it was this new role or the widespread success of his newspaper that made Franklin start thinking of the colonies as a singular bloc. At the outbreak of the French and Indian War in 1754, he proposed what has become known as the Albany Plan, calling for a union of the colonies to better defend themselves from attack. Showing great foresight for what was to come, his plan envisioned a president general with limited authority over the loose confederation and the power to levy taxes to be paid into a central treasury. Although the plan was approved by delegates from seven colonies, neither the king's representatives nor the colonial legislatures were ready for such a bold move. However, while the Albany Plan withered on the vine, it did eventually provide the seeds for the Articles of Confederation.

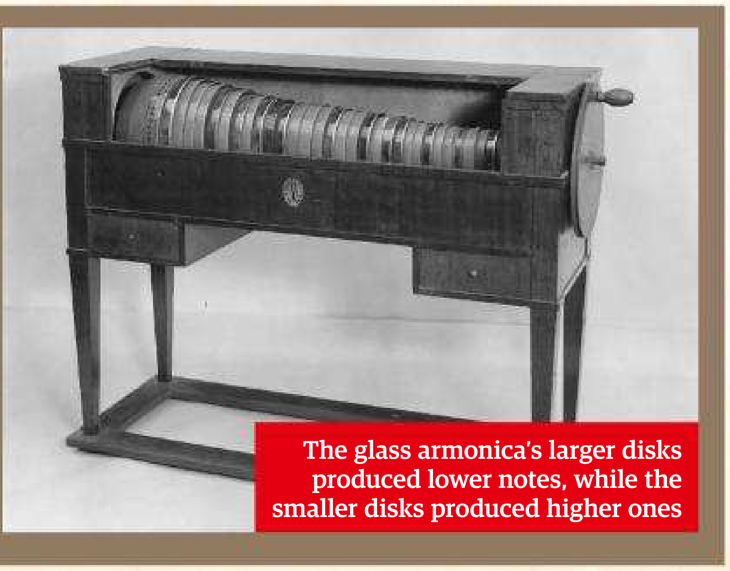
In 1757, Franklin travelled to England as an agent of the Pennsylvania Assembly. Except for a two-year return to Philadelphia in 1762-64 to check on his post offices, he spent the next 18 years in London. Ostensibly, he was there to meet with the family of William Penn, the proprietors of Pennsylvania, to insist that they pay more taxes to the colonial legislature. Privately, he hoped to persuade the British government to oust the Penn family and give the colonists greater autonomy as a royal province. Instead, he became preoccupied with the problems that arose from the hated Stamp Act of 1765.

Franklin opposed the plan, which required all legal documents, newspapers, posters and even playing cards to carry a tax stamp. But once he saw that the passage of the tax was inevitable, he accepted defeat and ordered stamps for his printing firm. Only Franklin's testimony before parliament denouncing the Stamp Act in 1766 saved his reputation in America. However, he remained supportive of Britain and its control of the colonies. He wrote to Hughes: "A firm Loyalty to the Crown and faithful Adherence to the Government of this Nation [...] will always be the wisest Course for you

Franklin's glass armonica

"Of all my inventions, the glass armonica has given me the greatest personal satisfaction," wrote Franklin about the musical instrument he designed in 1761. The armonica was inspired by an English musician Franklin had seen perform who created sounds by passing his fingers around the brims of glasses filled with water. Franklin worked with a London glassblower to recreate the music in a less cumbersome way. His armonica (from the Italian word 'armonia', meaning 'harmony') consisted of 37 bowls mounted horizontally on an iron spindle, which could be turned using a foot pedal.

The likes of Mozart and Beethoven penned music for the armonica, while the hypnosis pioneer Franz Mesmer used the instrument to guide his patients into deep trances. At the time of Franklin's death in 1790, more than 5,000 armonicas had been built, with many appearing in concert halls across Europe and America.



The glass armonica's larger disks produced lower notes, while the smaller disks produced higher ones and I to take, whatever may be the Madness of the Populace or their blind Leaders."

It's perhaps surprising then that Franklin became America's first whistleblower in 1773. He sent Thomas Cushing, the speaker of the Massachusetts Assembly, a series of letters in which the Massachusetts governor, Thomas Hutchinson, recommended an "abridgement" of liberties - including the use of British troops as police - to curb the increasingly violent protest movement. Rather than a revolutionary act, Franklin did it out of a naïve belief that exposing the letters would push blame for the growing political crisis back on colonial officials rather than the British government, de-escalating the tension between Britain and the colonists. Instead, after the *Boston Gazette* published the letters, protests broke out in the city and spread along the Eastern seaboard.

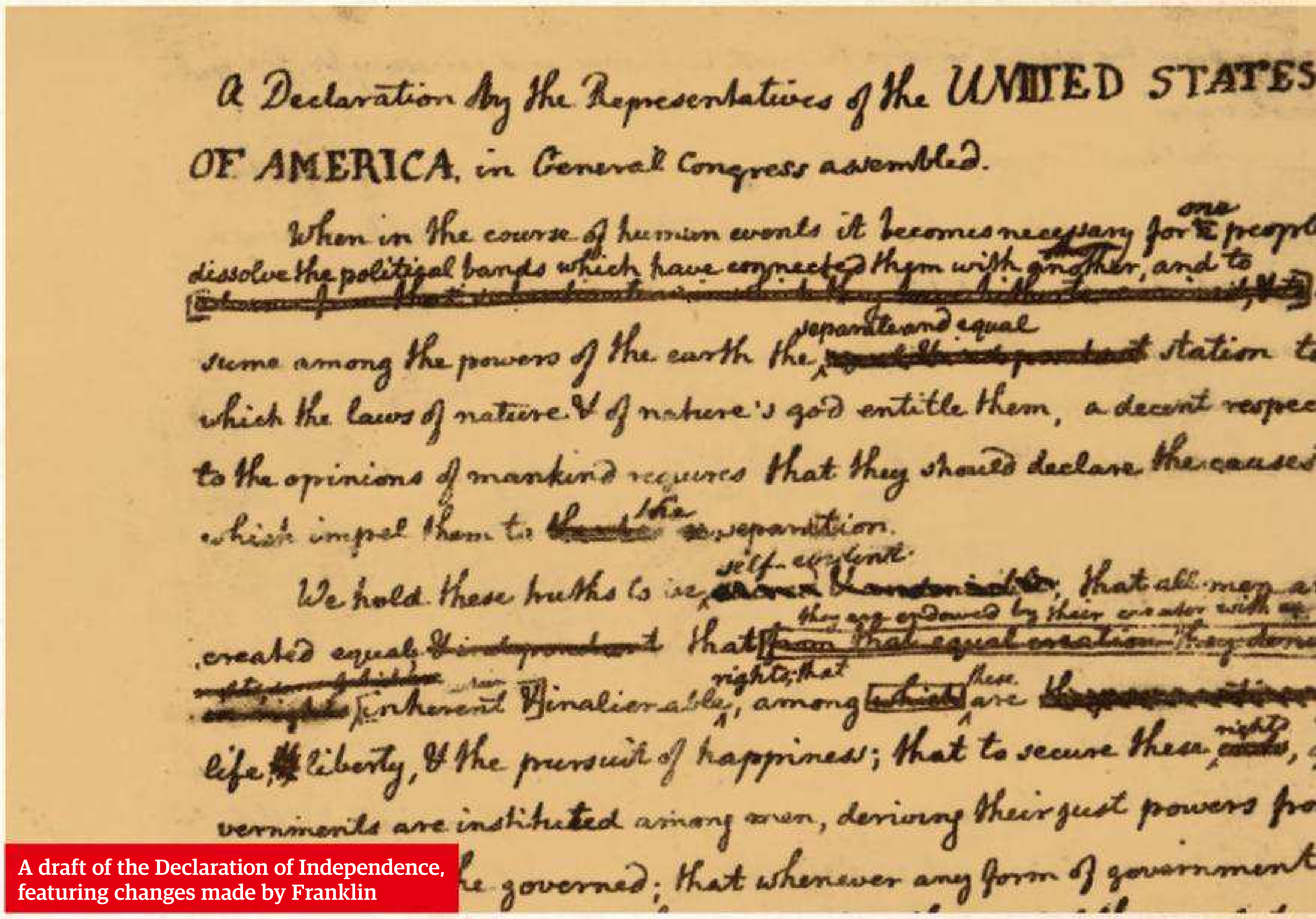
Franklin found himself dragged before the king's privy council in January 1774 where he was publicly berated, accused of stealing the letters and betraying the country. He was fired as the colonial deputy postmaster two days later. Franklin stayed on in London until March 1775, involved in a futile attempt at reconciling the two sides, before setting sail for America.

In the course of Franklin's voyage home, his homeland was transformed. Minutemen clashed with redcoats at Lexington and Concord as the American Revolution was getting underway. When Franklin reached Philadelphia in May 1775, the Second Continental Congress was gathering in the city to debate the insurgent colonies' next move. Franklin was immediately elected to represent the state of Pennsylvania once again.

When Franklin embraced independence is debated but by early July, he was one of the most ardent opponents of Britain in the Continental Congress. Despite being 70, he threw himself into the work of building a new country from scratch. He served on a variety of congressional committees, helping to establish a new currency, defined rules for the Continental Army to follow, and developed a new postal system.

Most significantly of all, Franklin was part of the Committee of Five tasked with co-authoring the Declaration of Independence. Although Thomas Jefferson wrote the vast majority of the document, the old newspaperman put his editor's hat back on, proofreading Jefferson's text and tweaking the wording. It's thought it was Franklin who drew a thick black line through Jefferson's phrase (still visible on the 'rough draft' held by the Library of Congress) that said: "We hold these truths to be sacred and undeniable." Franklin changed this to the words that are now enshrined in history: "We hold these truths to be self-evident."

No sooner was the Declaration of Independence signed, Franklin was sent to Paris to seek military aid from France. The Continental Congress could not have chosen a better representative. Playing on the French aristocracy's romanticised view of the American frontiersman, he arrived at King Louis XVI's royal court wearing a homespun brown suit and fur hat. While defying the stiff protocol of Europe's most formal court was a gamble, it paid off: Franklin became an overnight celebrity. Frenchmen sympathetic to the American cause and the enlightened principles behind it donned fur caps, while ladies had their wigs styled in a look known as 'coiffures à la Franklin'.



A Declaration by the Representatives of the UNITED STATES
OF AMERICA, in General Congress assembled.
When in the course of human events it becomes necessary for one peopl
dissolve the political bands which have connected them with another, and to
sume among the powers of the earth the separate and equal ~~equal & independant~~ station t
which the laws of nature & of nature's god entitle them, a decent respec
to the opinions of mankind requires that they should declare the causes
which impel them to ~~the~~ the separation.
We hold these truths to be self-evident ~~sacred & undeniable~~, that all men a
created equal ~~& independant~~ that they are endowed by their creator with ~~from that equal creation they derive~~
~~rights~~ inherent & inalienable rights; that among ~~which~~ these are
life, & liberty, & the pursuit of happiness; that to secure these rights,
vernments are instituted among men, deriving their just powers fro
he governed; that whenever any form of government

A draft of the Declaration of Independence, featuring changes made by Franklin

> "Franklin was part of the Committee of Five tasked with co-authoring the Declaration of Independence"

Franklin also knew that real diplomacy in France wasn't accomplished around the negotiating table, but the dinner table. He spent a great deal of time in the salons and at dinner parties. In this way, he won the trust and respect of the French court. In 1778, he secured an alliance with France, which saw it commit supplies, volunteer fighters and a fleet that helped win the war. Franklin also managed to secure loans for the new republic from France's increasingly impoverished government.

But not everyone agreed with Franklin's methods. In 1783, while he was part of Franklin's negotiating team tasked with making peace with Great Britain from Paris, John Adams complained that Franklin enjoyed himself while he and John Jay did all the work. However, it was Franklin who successfully mollified Louis XVI when Adams and Jay jeopardised French support. The problem arose from the fact that France wanted a three-way treaty that would end their war with Britain, as well as between Britain and the 13 Colonies. Months passed and various offers and counter-offers were made by the former colonies and Great Britain.

Meanwhile, France was negotiating settlements with Great Britain that involved portions of the North American continent. Frustrated with how long the process was taking, Adams and Jay decided to negotiate a treaty directly with Britain. The British made them an incredible offer, one that gave the Americans almost everything they demanded; even Franklin had to concede it was the best deal they could get. But the French were offended that the Americans had gone behind their backs. Franklin had to use all his diplomatic skills to convince the chief minister that Adams and Jay had acted out of lack of propriety, not hostility.

Franklin stayed in France until 1785, when he reluctantly returned to America. Leaving the many friends he'd made behind, he feared he would be a "stranger in my own country" after so many years abroad. His fears proved correct as he found himself politically marginalised. Though he owned two slaves for many years, before he died in 1790, Franklin signed a statement calling for the abolishment of slavery, which Congress rejected.

After his death, the House of Representatives voted to declare a month of mourning for him, but the Senate rejected it, possibly because he wrote a scathing response to the failure of his anti-slavery petition. However, down the decades, Franklin has been widely accepted as one of the United States' most famous figures and come to embody the American ideal of the self-made man.

© Getty Images

Thomas Jefferson

He wrote the Declaration of Independence, but did Thomas Jefferson truly believe that all men are created equal?

Thomas Jefferson's earliest memory was when he was carried in the arms of a black slave at the age of two to his family's new home - a tobacco plantation. During his childhood it was expected that the young boy would grow up to become a typical Virginian slave owner, just like his father, but Thomas was keen to pursue a life beyond the plantation. He loved reading and he also had a keen interest in science, linguistics and natural history, but it was in law that he would first make his mark, being admitted to the Virginia bar in 1767.

It was a time of flux in North America. When the American Revolution began in 1775, Jefferson was appointed a Virginian representative in the Continental Congress at Philadelphia. He had been hand-picked by John Adams, an early leader of the independence movement, to join him on a committee that was tasked with writing a Declaration of Independence.

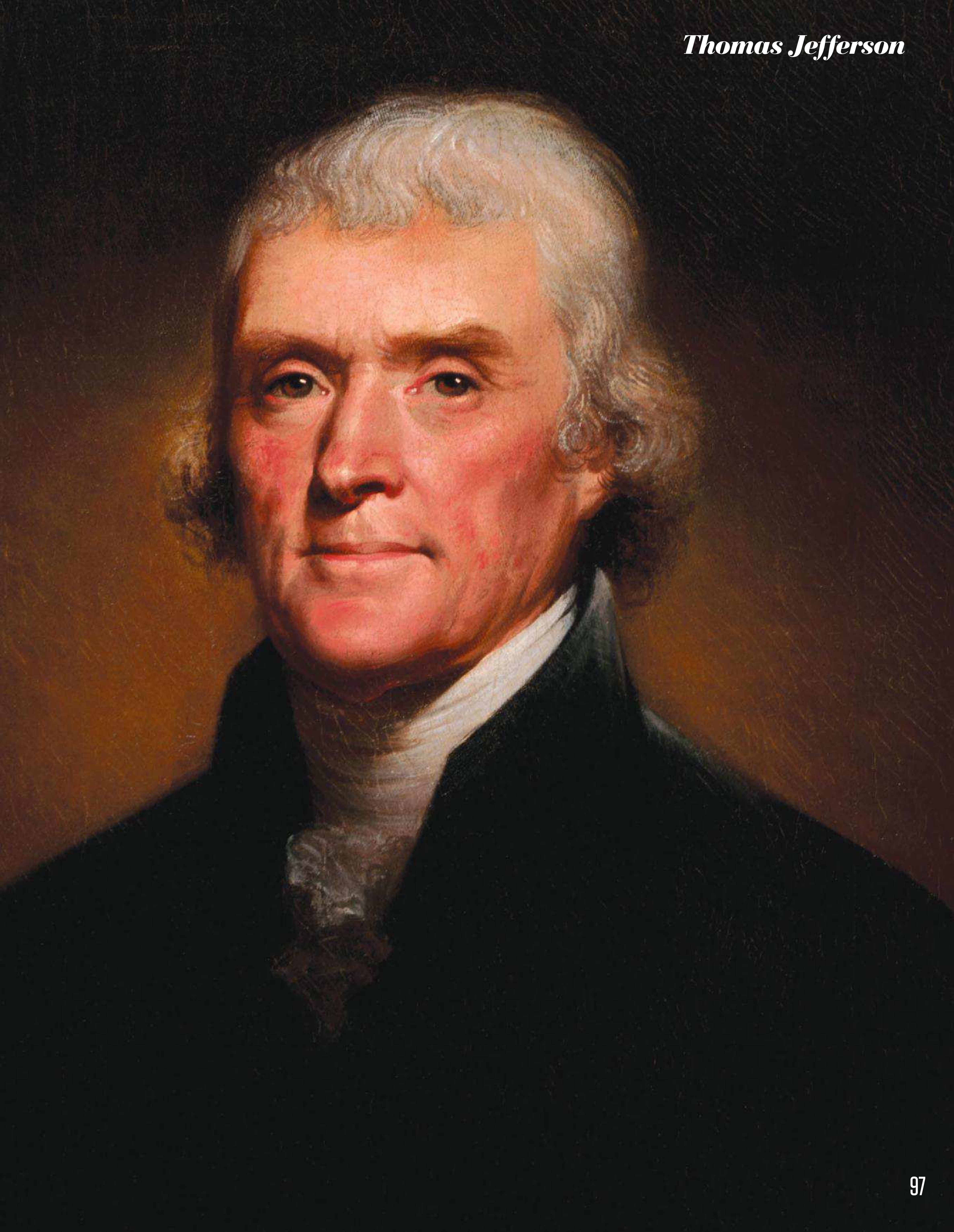
This was to be Jefferson's finest hour. He was asked to pen the draft that the committee discussed, and so became the primary author of one of history's most iconic documents. However, he didn't get it all his own way. His original draft stated: "We hold these truths to be sacred and undeniable; that all men are created equal and independent." It was an idea influenced by the Enlightenment that remained even when Benjamin Franklin changed it to: "We hold these truths to be self-evident, that all men are created equal."

The Declaration of Independence was ratified by the Continental Congress on 4 July 1776, after which Jefferson returned to Virginia and saw out the rest of the American Revolution in local government. He supervised the creation of a state constitution and revised the legal system before becoming governor of Virginia. He was in charge when the British invaded and sacked the state capital, Richmond, in 1781; Jefferson narrowly escaped being captured by the Redcoats. Had the author of the Declaration of Independence been imprisoned by the British, it would have been a huge propaganda victory for the colonial masters.

With the end of the war, Jefferson was again sent to Congress. The delegates were building a new country and as one of the United States of America's most renowned Founding Fathers, Jefferson was given a special task - he was dispatched as minister to France to solidify relations between the two nations. Jefferson spent four years in Paris, an Enlightenment hub, until he

> "It was an idea influenced by the Enlightenment that remained even when Benjamin Franklin changed it"

Thomas Jefferson



Philosophical leadership

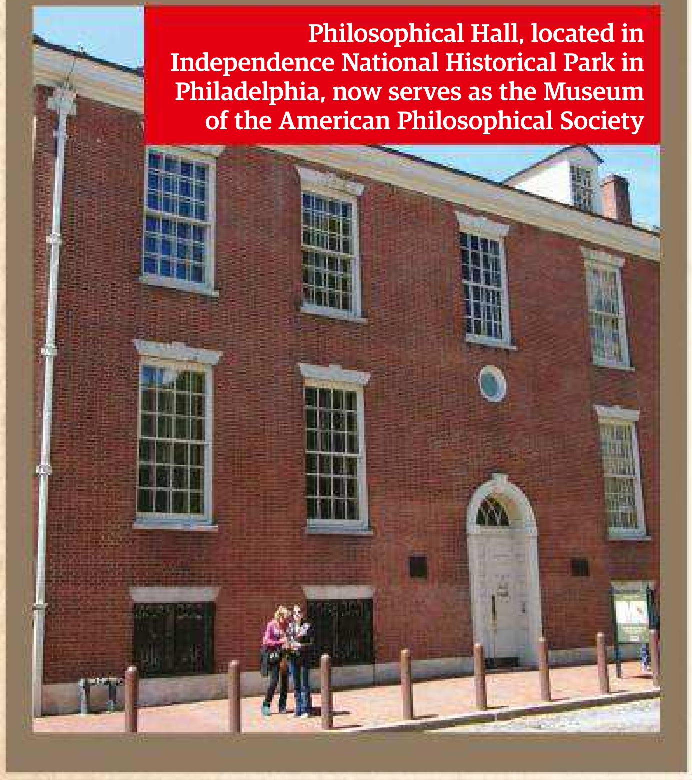
As president of the American Philosophical Society for 18 years, Jefferson promoted the enlightened discovery and application of knowledge

One of the renowned thinkers and discoverers of the American Enlightenment, Thomas Jefferson contributed vision and intellect as a member and president of the American Philosophical Society. Founded by Benjamin Franklin in 1743, the Society had become inactive in 1746 only to be revived 23 years later following its merger with the American Society for Promoting Useful Knowledge. Jefferson was elected to the American Philosophical Society in 1780 and brought renewed energy with the perspective of the Enlightenment.

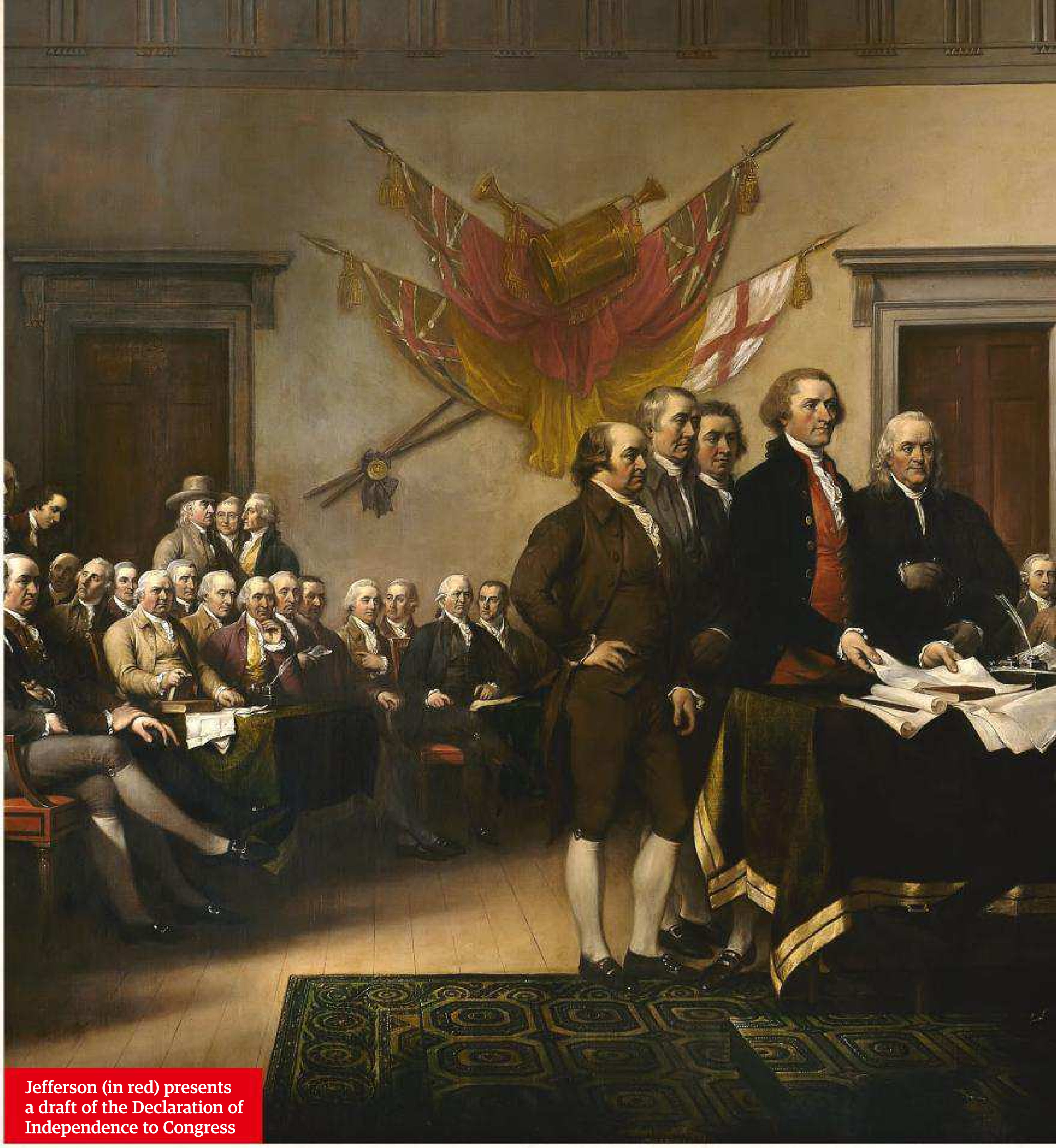
On 3 March 1797, the day before he was sworn in as vice-president of the United States of America, Jefferson became the third Society president. Already, in the midst of the Revolutionary War, he had submitted his acclaimed *Notes on the State of Virginia*, his only published book, to the organisation.

Jefferson served as Society president for the next 18 years, a period of dramatic discovery. During eight of those years, he was also president of the United States. He solicited the Society's support for the Lewis and Clark exploration of the territory of the Louisiana Purchase and introduced Meriwether Lewis to Society members familiar with medicine, botany, zoology, mathematics and other disciplines. He studied the hessian fly, a destructive insect that was ravaging American crops, and supported the efforts of the "Bone Committee" to "procure one or more entire skeletons of the Mammoth".

In 1815, aged 72, Jefferson resigned from the Society, although he remained active through correspondence. After he died in 1826, the chair Jefferson had occupied as president was draped in black for six months.



Philosophical Hall, located in Independence National Historical Park in Philadelphia, now serves as the Museum of the American Philosophical Society



Jefferson (in red) presents a draft of the Declaration of Independence to Congress

was recalled in September 1789, just as the French Revolution was gathering pace.

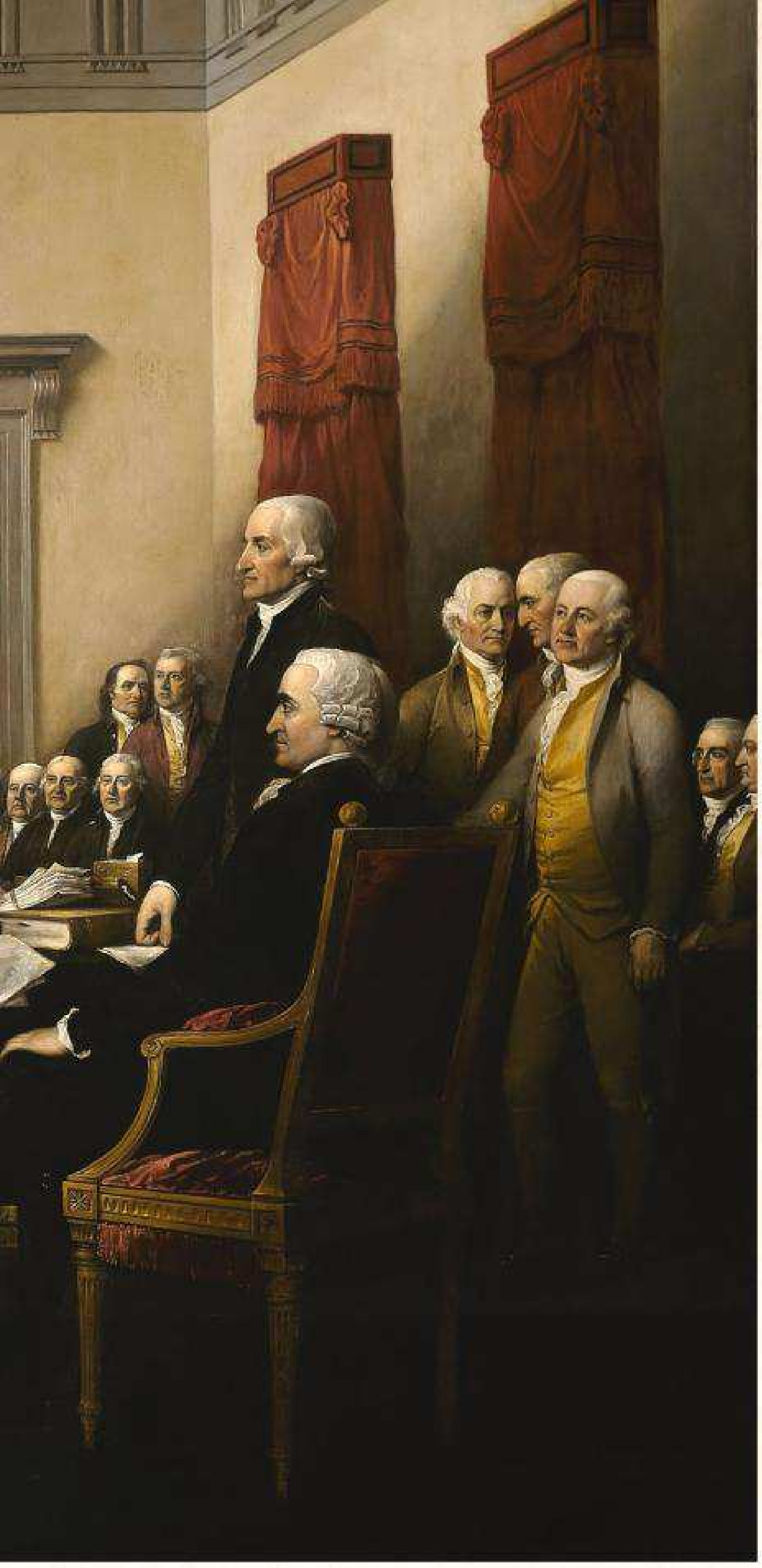
Steadfast in his belief in Enlightenment values, Jefferson was a firm supporter of the French Revolution and intended to return to France as soon as possible, but his plans changed when the new president, George Washington, asked him to serve as the first secretary of state. It was here, at the very heart of American politics, where Jefferson hoped to influence the future shape of his country.

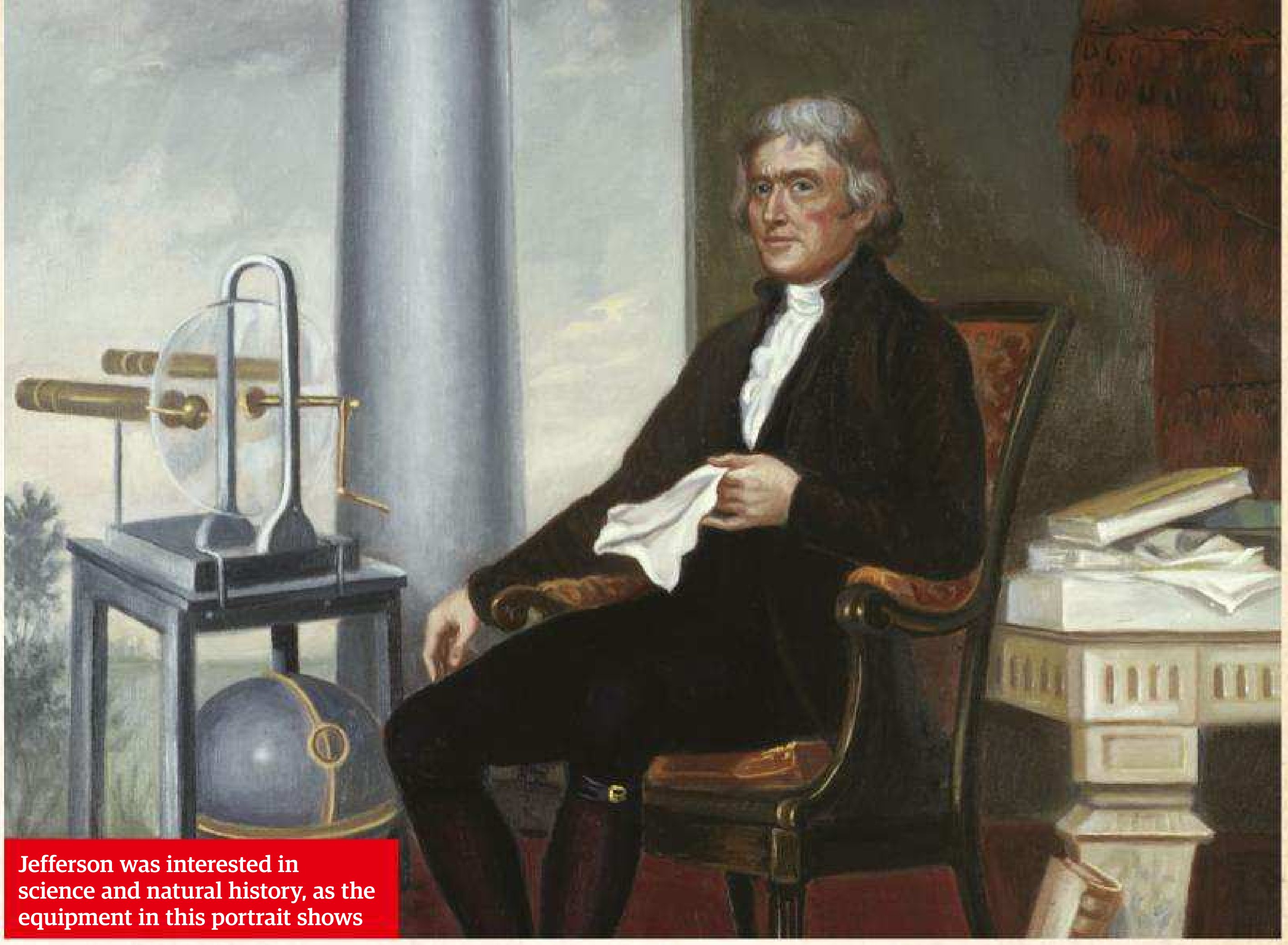
Although the American revolutionaries were united in their opposition to colonial rule from London, they were not in agreement as to how the new United States should function after independence. Two factions began to develop. One, led by Alexander Hamilton, wanted a strong, central, national government. They became known as the Federalists. Jefferson was alarmed by the mounting power of central government; instead he wanted greater rights for the individual states in the union. Like-minded individuals began to gather around him and they collectively became known as the Republicans.

Jefferson was unable to prevent the Federalists from dominating government and stepped down in 1793, stating a desire to return to family life. However, when George Washington declined to stand for a third term as president in 1796, the new country lost its unifying leader. Jefferson returned to the front line of politics, standing on a Republican platform in the presidential election, but lost out to his former revolutionary colleague and now Federalist opponent John Adams. The rules then in force stated that as he was the candidate with the second-highest number of votes, Jefferson would become vice-president.

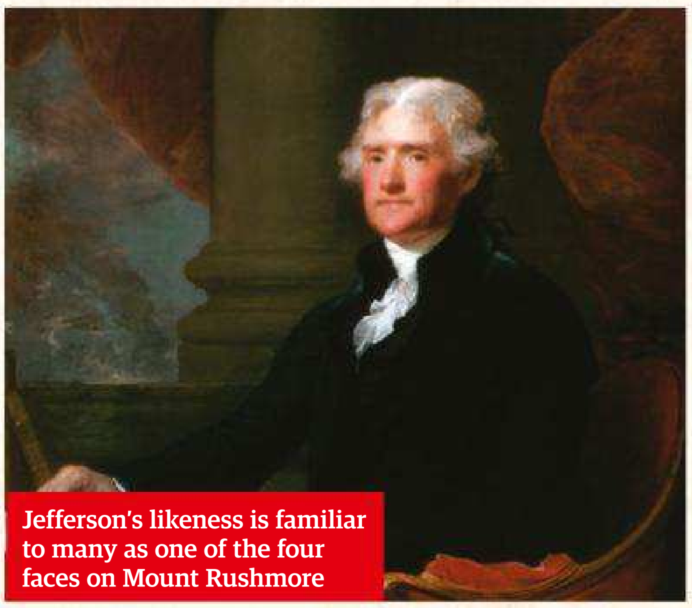
Jefferson was still unable to prevent Federalist policies from being passed, however, and took the dramatic step of writing the Kentucky and Virginia Resolutions with his fellow Republican leader and political ally James Madison. They kept their authorship secret - for good reason. The resolutions they had penned declared that Congress could not exercise powers unless they were specifically granted by the states, and that the over-arching power of Congress could "necessarily drive these states into revolution and blood". Jefferson was actively raising the possibility of rebellion against the government of which he was vice-president. Had his authorship of the resolutions been uncovered, he could conceivably have been impeached for treason.

Jefferson stood against Adams for a second time in the 1800 presidential election, this time beating him and becoming the third leader of the United States of America. Jefferson resided in the White House for two terms, between 1801 and 1809, a period during which the United States

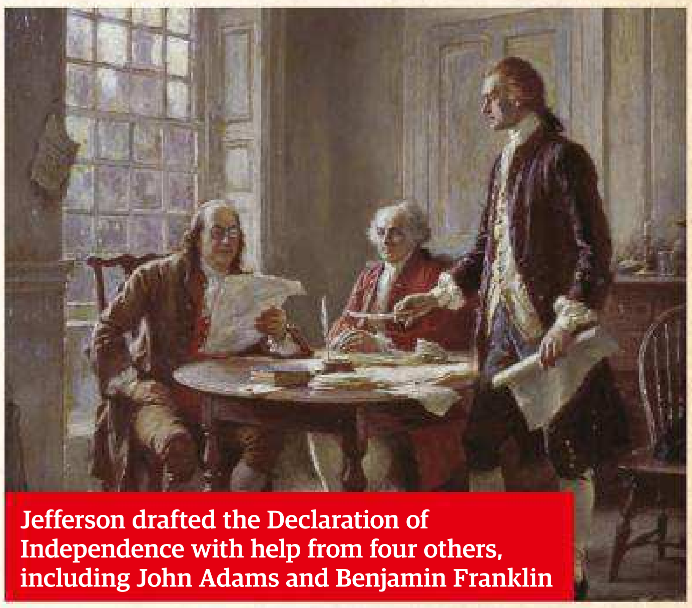




Jefferson was interested in science and natural history, as the equipment in this portrait shows



Jefferson's likeness is familiar to many as one of the four faces on Mount Rushmore



Jefferson drafted the Declaration of Independence with help from four others, including John Adams and Benjamin Franklin

"Jefferson hoped to influence the future shape of his country"

expanded beyond the original 13 colonies. Under the Louisiana Purchase, 828,000 square miles were bought from France for $15 million, doubling the size of the country. Westward expansion also began, with Jefferson approving the Lewis and Clark expedition to the Pacific coast.

Back in Washington, DC, Jefferson was finally able to dismantle much of the Federalist system constructed by Alexander Hamilton. It was a deliberate strategy, named the 'Revolution of 1800' by Jefferson, and helped the Republicans become the pre-eminent force in the land. Jeffersonian Republicans would dominate national politics for the next 25 years under Jefferson and his two successors, James Madison and James Monroe, while the once dominant Federalists faded away.

However, the Jefferson administration was not without its problems. His first vice-president, Aaron Burr, was a thorn in his side, going as far as mortally wounding Hamilton in a personal duel. When Burr fled west and was embroiled in plots to seize control of US territory, Jefferson wanted Burr to feel the full wrath of the law, but the president was enraged when he was acquitted.

A problem of Jefferson's own making was his attitude to Native American peoples, who were a barrier to his dreams of westward expansion. Jefferson advocated peaceful assimilation with the tribes to the west, encouraging them to give up their traditional nomadic lifestyle and culture. If this did not succeed, however, he was willing to use force: "If ever we are constrained to lift the hatchet against any tribe, we will never lay it down until that tribe is exterminated, or driven beyond the Mississippi."

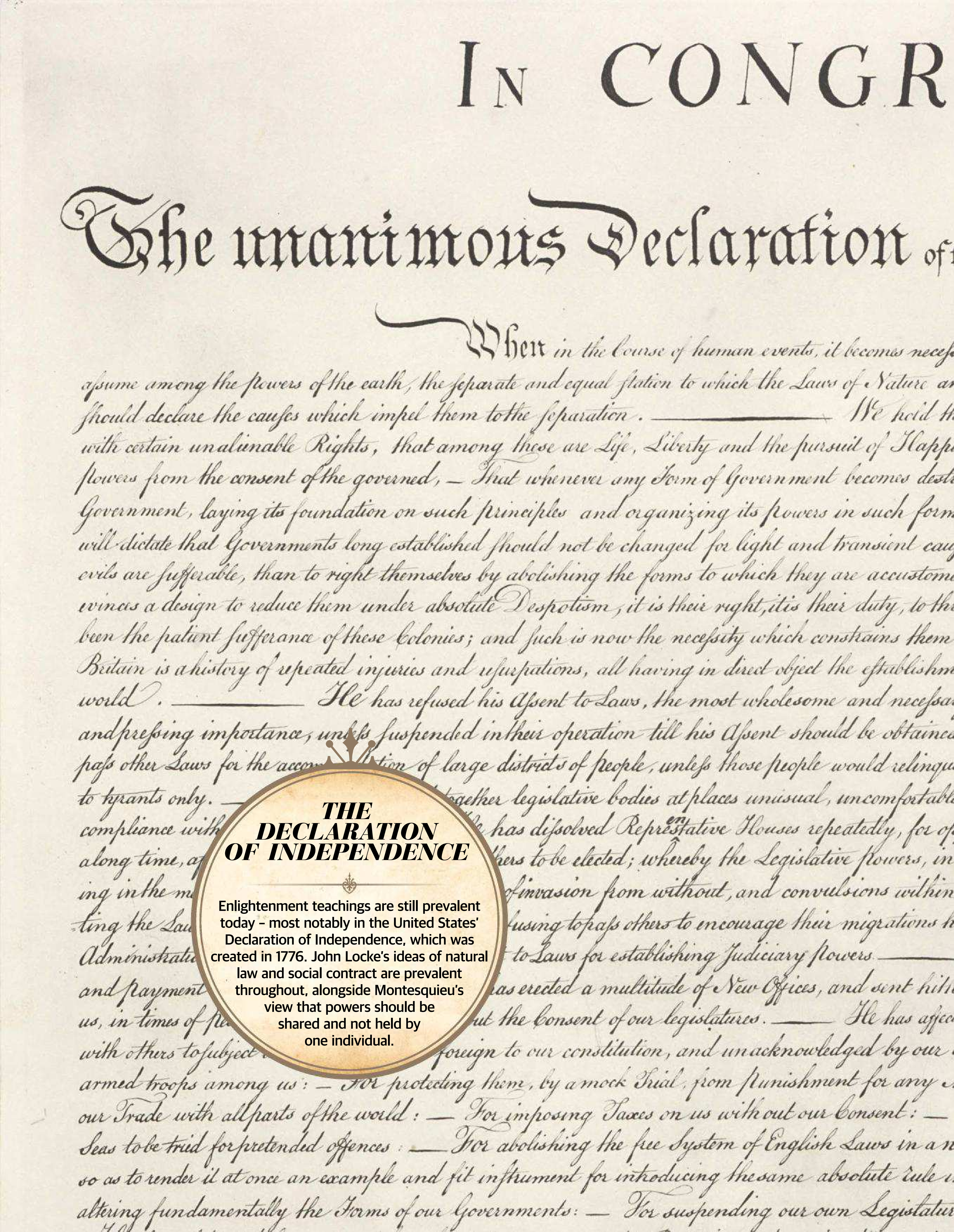
Although Jefferson never went as far as waging war against the Native Americans, his ideas signalled a troubling attitude to other races that has been used against him by modern critics. It's a similar case in the subject most commonly used to censure Jefferson - slavery.

Jefferson was one of the biggest slaveholders in Virginia, owning more than 600 people over his lifetime and taking part in both buying and selling slaves. However, Jefferson was a reluctant slaveholder. His original draft of the Declaration of Independence included a passage that was critical of the slave trade, but it was removed by Congress. During his presidency, the international slave trade was banned, stopping the importation of new slaves from Africa; earlier in his career, Jefferson made attempts to ban it in the Western Territories.

Rumours also abounded that Jefferson was in a long-term relationship with one of his own slaves, Sally Hemings, and had fathered several children by her. DNA evidence suggests this claim is likely to be true, although the proof is not conclusive. The relationship probably began after the death of Jefferson's wife when she was just 33, possibly when Jefferson was minister to France and Hemings travelled there with his daughter.

Jefferson embarked on 17 years of political retirement after leaving the White House in 1809, although he kept busy - befitting his interest in education and learning, he helped to found the University of Virginia. It was only fitting - after all, both his presidency and personal pursuits had followed the Enlightenment ideal of pursuing knowledge to better himself.

He died on 4 July 1826, 50 years to the day that his greatest achievement, the Declaration of Independence, was ratified. However, Jefferson was much more than just the author of the world's most famous declaration. He not only helped to win independence for the American colonies, he was a key influence in helping to shape the United States as it is today and remains an American hero.



IN CONGR

The unanimous Declaration of

When in the Course of human events, it becomes neceſ
aſsume among the powers of the earth, the ſeparate and equal ſtation to which the Laws of Nature an
ſhould declare the cauſes which impel them to the ſeparation. —— We hold th
with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happ
powers from the consent of the governed, — That whenever any Form of Government becomes dest
Government, laying its foundation on such principles and organizing its powers in such form
will dictate that Governments long established ſhould not be changed for light and transient cau
evils are ſufferable, than to right themselves by abolishing the forms to which they are accustom
evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to thr
been the patient ſufferance of these Colonies; and ſuch is now the neceſsity which constrains them
Britain is a history of repeated injuries and uſurpations, all having in direct object the eſtablishm
world. —— He has refused his Aſsent to Laws, the most wholesome and neceſsa
and preſsing importance, unleſs ſuspended in their operation till his Aſsent should be obtaine
paſs other Laws for the accom[illegible]tion of large districts of people, unleſs those people would relinqu
to tyrants only. — [illegible] together legislative bodies at places unusual, uncomfortabl
compliance with [illegible] He has diſsolved Repreſentative Houses repeatedly, for op
a long time, af[illegible] others to be elected; whereby the Legislative powers, in
ing in the m[illegible] of invasion from without, and convulsions within
-ting the La[illegible] fusing to paſs others to encourage their migrations h
Administrati[illegible] to Laws for establishing Judiciary powers ——
and payment [illegible] has erected a multitude of New Offices, and sent hith
us, in times of pe[illegible] ut the Consent of our legislatures. —— He has affec
with others to ſubject [illegible] foreign to our constitution, and unacknowledged by our
armed troops among us: — For protecting them, by a mock Trial, from punishment for any
our Trade with all parts of the world: — For imposing Taxes on us without our Consent: —
Seas to be tried for pretended offences: — For abolishing the free System of English Laws in a n
so as to render it at once an example and fit inſtrument for introducing the same absolute rule i
altering fundamentally the Forms of our Governments: — For suspending our own Legislatur

THE DECLARATION OF INDEPENDENCE

Enlightenment teachings are still prevalent today – most notably in the United States' Declaration of Independence, which was created in 1776. John Locke's ideas of natural law and social contract are prevalent throughout, alongside Montesquieu's view that powers should be shared and not held by one individual.

ESS, JULY 4, 1776.

the thirteen united States of America,

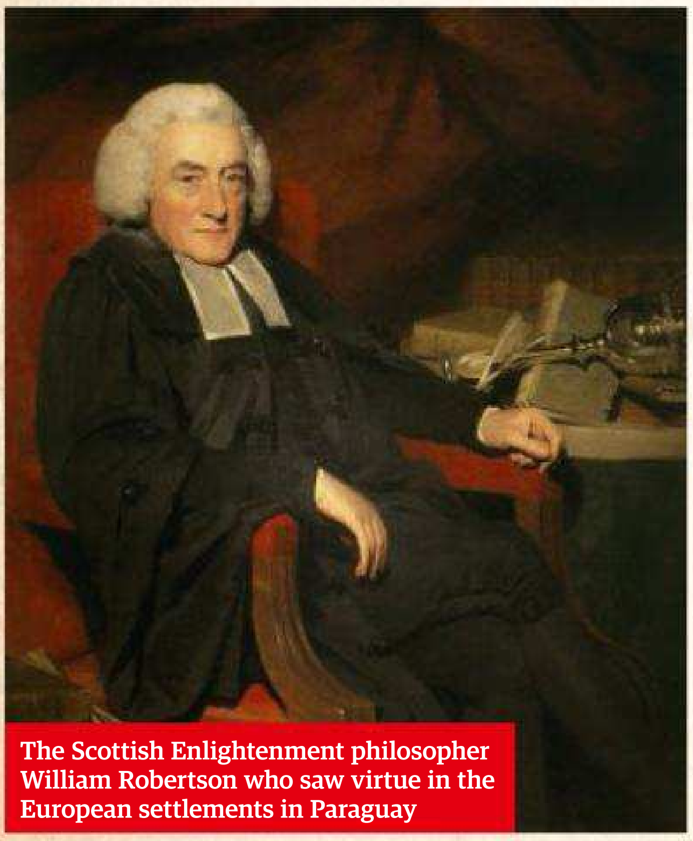
sary for one people to diſsolve the political bands which have connected them with another, and to
nd of Nature's God entitle them, a decent respect to the opinions of mankind requires that they
hese truths to be ſelf-evident, that all men are created equal, that they are endowed by their Creator
neſs. — That to ſecure these rights, Governments are instituted among Men, deriving their just
uctive of these ends, it is the Right of the People to alter or to abolish it, and to institute new
, as to them shall seem most likely to effect their Safety and Happineſs. Prudence, indeed,
ſes; and accordingly all experience hath ſhewn, that mankind are more disposed to ſuffer, while
ed. But when a long train of abuses and uſurpations, pursuing invariably the same Object
ow off such Government, and to provide new Guards for their future ſecurity. — Such has
to alter their former Systems of Government. The history of the present King of Great
ent of an absolute Tyranny over these States. To prove this, let Facts be ſubmitted to a candid
y for the public good. —— He has forbidden his Governors to paſs Laws of immediate
l; and when so ſuspended, he has utterly neglected to attend to them. —— He has refused to
sh the right of Representation in the Legislature, a right ineſtimable to them and formidable
, and distant from the depository of their Public Records, for the sole Purpose of fatiguing them into
posing with manly firmneſs his invaſions on the rights of the people. —— He has refused for
capable of Annihilation, have returned to the People at large for their exercise; the State remain
. —— He has endeavoured to prevent the Population of these States; for that purpose obstruc-
ither, and raising the conditions of new Appropriations of Lands. —— He has obstructed the
— He has made Judges dependent on his Will alone, for the tenure of their offices, and the amount
er ſwarms of Officers to harraſs our People, and eat out their ſubstance. — He has kept among
ed to render the Military independent of and superior to the Civil power. —— He has combined
laws; giving his Aſsent to their Acts of pretended Legislation: — For Quartering large bodies of
Murders which they should commit on the Inhabitants of these States: — For cutting off
For depriving us in many cases, of the benefits of Trial by Jury: — For transporting us beyond
ighbouring Province, establishing therein an Arbitrary government, and enlarging its Boundaries
nto these Colonies: —— For taking away our Charters, abolishing our most valuable Laws, and
es, and declaring themselves invested with power to legislate for us in all cases whatsoever. —

Revolution in Paraguay

The European encounter with the indigenous people of Paraguay triggered heated debate about the impact of colonialism and the very fundaments of human nature

Words by Jon Wright

The Enlightenment turned out to be a global affair, but it never fully escaped its European origins. We see this most clearly in the attempts of Western thinkers to conceptualise other cultures around the world. It was easy to admire the ancient, complex civilisation of China, but what of peoples who, by the blinkered standards of the age, were deemed to be less advanced? A muddled analysis emerged. At times, the innocence and purity of cultures unpolluted by the trappings of modernity were trumpeted. Just as often, the syndics of Enlightenment argued that such people should be civilised and exposed to the moral, religious and intellectual treasures of the West.



The Scottish Enlightenment philosopher William Robertson who saw virtue in the European settlements in Paraguay

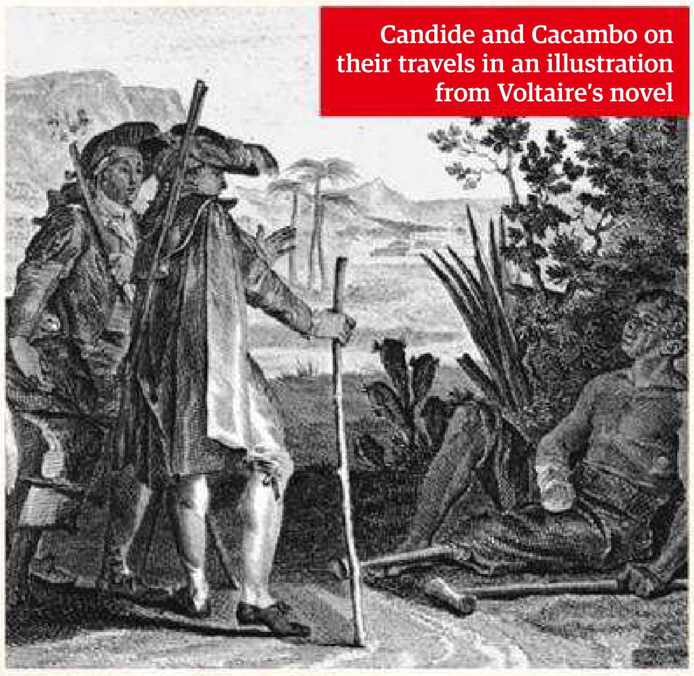
Paraguay provides a telling case study of how these worldviews clashed and, at the heart of the story, were the mission communities established by the Jesuit order. Members of the Society of Jesus had been plying their evangelical trade in the region since the beginning of the 17th century. Their settlements, known as 'Reductions', brought local peoples, chiefly the Guaraní, into well-ordered towns centred on a church and educational establishments. The nomadic lifestyle was to be abandoned and replaced by the acquisition of trade skills (in, for example, carpentry and metalworking), cattle ranching and the production of yerba mate. Christian instruction was mandatory and the reductions also placed great emphasis on the cultivation of musical and artistic ability. By the mid-18th century, the reductions were home to as many as 150,000 people.

Opinions about the virtues of the Jesuits' work in Paraguay were deeply divided. For some, they were an almost utopian example of Europeans "improving" the benighted lives of indigenous people. True, the Jesuits ran a very tight ship, but they allowed for the communal ownership of property, they were far less harsh than colonists who enforced rules of forced labour, and they even allowed the locals some measure of self-determination in matters of governance and justice. The Jesuit José Manuel Peramás, a veteran of the Paraguayan mission fields, compared the Reductions to Plato's *Republic*, boasting that they were home to "not a single beggar" and had enabled the Guaraní to learn music "to such a degree of perfection that they have caused admiration in the Europeans". The Reductions were seen as the pinnacle of a Catholic understanding of Enlightenment in which faith, reason and moral improvement intertwined.

Other interpretations were less generous, not least because the Jesuit order was always singled out for criticism in some Enlightenment circles. Diderot saw the Reductions as a model of oppression where the "cruel sons of Sparta in their black habits mistreated their Indian slaves". Jesuits could be found "slaking their own thirst" with the sweat of their charges and "striding among them, whip in hand, lashing out against everyone". Voltaire, whose attitudes to the Reductions were inconsistent, admitted that the Jesuits had accomplished an astonishing logistical achievement in Paraguay but worried about the consequences of theocratic rule. In *Candide*, the protagonist's companion Cacambo reveals that the priests "have made themselves absolute sovereigns" so that "the fathers possess all and the people nothing". The well-travelled Comte de Bougainville, meanwhile, conceded that, judging by the Jesuits' own accounts, everything was decidedly rosy in Paraguay: all were "united only by the charms of persuasion" but the "theory is widely different from the execution of the plan" and a little digging revealed despotism.

It is fair to say that both the idealising and demonising of the Reductions were exercises in caricature, but they reflected an enduring

The remains of one of the Jesuit Reductions at Trinidad, Paraguay



Candide and Cacambo on their travels in an illustration from Voltaire's novel

José Gaspar Rodríguez Francia, Paraguay's first post-independence dictator who was inspired by Enlightenment ideas

Enlightenment debate about the nature of colonialism. It is striking that many figures, while being lukewarm about the Jesuits in general, saw value in their Paraguayan missions. Guillaume Thomas Raynal wrote that the Reductions had "met with the approbation of the wisest men" and he probably had in mind the leading contributor to the Scottish Enlightenment, William Robertson. Robertson took an interesting tack, suggesting that the Jesuits had established the missions to spread their power and influence but that this had resulted in a "perfect despotism" that fostered equality, education and security.

In any event, the Reductions were not destined to endure. The boundary provisions of a 1750 treaty between Spain and Portugal moved the missions on the east side of the Uruguay River into the Portuguese sphere of influence and disaffected Guaraní rose in rebellion in 1753. Jesuits were blamed for encouraging the revolt and these events played a significant role in the attacks endured by the Spanish and Portuguese branches of the Society of Jesus during the late 1750s and 1760s. These, in turn, were a crucial step on the road to the Jesuits' global suppression in 1773: a climacteric that, naturally, delighted the Society's philosophe enemies in the salons of Paris.

Concocting the "noble savage"

The 18th century witnessed the rise of a romanticised, and perilously reductive, image of the people of the New World

Many Enlightenment thinkers looked to the New World as a landscape free from the artificial laws, institutions, religions and ethical nostrums of the West. Innocence and purity reigned among people who lived in harmony with nature. A great deal of simplification, not to mention condescension, littered such analyses, but they secured enthusiastic audiences among the European reading public.

In one of his earliest, career-making, essays, Jean-Jacques Rousseau argued that people were at their best in a state of nature: physically stronger, equal and not obsessed with the acquisition of material goods. He would, of course, change his mind and, by the time of writing *The Social Contract*, the state of nature had become violent and lawless.

Ahead of this, though, others had followed his lead. Diderot and the Comte de Bougainville were particularly vocal advocates of the idealised "noble savage", with Tahiti and North America coming in for lavish praise. A Tahitian character in Diderot's 1772 *Supplement to Bougainville's Travels* was charged with scolding Europeans for their intrusions into paradise: "We are innocent; we are happy; and you can only harm our happiness. We follow the pure instinct of nature, and you have tried to erase the character of our souls."

The Comte de Bougainville, a great believer in the virtues of the "noble savage"

> "Jesuits were blamed for encouraging the revolt"

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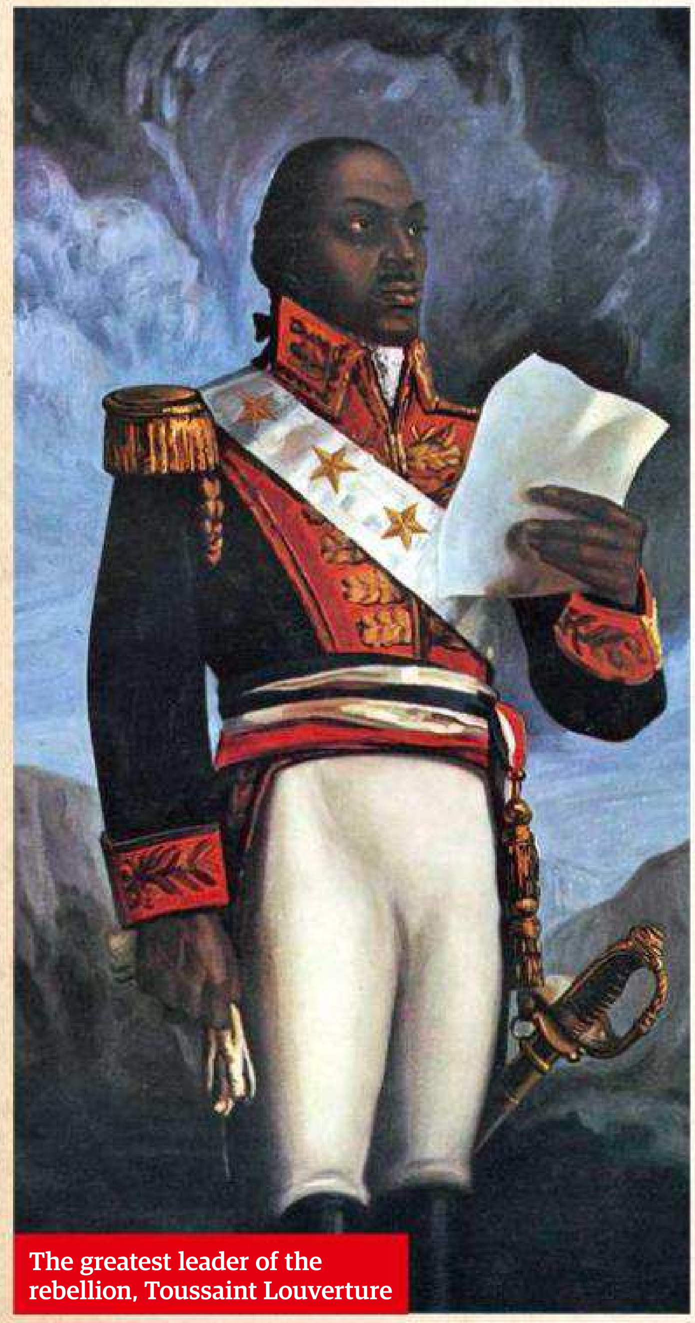
The Haitian Revolution

The currents of 18th-century thought helped to inspire one of history's greatest slave revolts

Words by Jon Wright



The greatest leader of the rebellion, Toussaint Louverture

The colony of Saint-Domingue, spread across the western third of the island of Hispaniola, was a lynchpin of France's global economic ventures. Intensive production of cotton, indigo, coffee and, above all, sugar raked in huge profits. Plantations were entirely dependent on slave labour, and more than 800,000 Africans were dragged to the colony between 1680 and 1776.

By the late 1780s, 20,000 slaves were still arriving every year. They often endured abominable working conditions, and regulations aimed at curbing the worst excesses of slaveholders were routinely ignored. Long before the momentous events of the 1790s, disaffected slaves had risen in revolt, most notably under the leadership of François Mackandal during the 1750s. The French authorities were constantly on alert, all too aware that the slave population outnumbered white settlers by ten to one.

Across the French-speaking world, the revolution began in Paris in 1789, inspiring hopes of change. For the white population of Saint-Domingue, this meant campaigning for greater economic independence from the homeland. For the mixed-race inhabitants of the island, including the so-called 'free-people of colour', the goal was to secure enhanced civil and political rights. These latter aspirations encountered stubborn resistance, and a short-lived rebellion, led by Jacques Vincent Ogé, was launched in 1790. This uprising had no abolitionist agenda, but the colony's slaves also found inspiration in the events transpiring in France, and one of their great leaders, the self-educated Toussaint Louverture, had imbibed many of the concepts of Enlightenment thought.

Agitation began in the north of the colony in April 1791. Hundreds of Europeans and plantations were attacked and, by August, a coordinated rebellion was underway. Soon, as many as 80,000 slaves had rallied to the cause and, as one colonist put it, "the revolt had been too sudden, too vast, and too well-planned for it to seem possible to stop it or even moderate its ravages".

Over the next 13 years, a chaotic political and military story unfolded. The French government sought to extinguish the rebellion by granting concessions – first to those of mixed race, and then, in 1794, by declaring the abolition of slavery across France and its colonies. The Spanish and the British, eager to secure so lucrative a colony, were delighted to intervene on the side of the rebels but showed little interest in eliminating human bondage. Both nations failed in their efforts and paid a mighty cost both in terms of damaged reputations and military casualties.

By the late 1790s, the rebellion's leaders began to see potential in some variety of reconciliation with France. Louverture, having removed rivals such as André Rigaud, sought an accord, though he was reluctant to cede too much power and influence. In 1801 he was named governor-general for life, and issued constitutions that boldly commanded that "all individuals be admitted to all public functions depending on their merit and without regard to race or colour". Louverture's regime was not well-liked, however. The black population resented the imposition of mandatory labour laws, while Bonaparte's regime in France feared that Louverture was becoming overmighty. New rebellions were launched against the governor-general and, simultaneously, French troops began to pour into the colony. Bonaparte's unstated goal was the restoration of slavery.

Famous battles ensued - a crushing defeat at the Ravine-à-Couleuvre and heroic resistance at Crête-à-Pierrot - but faced with defections from his armies, Louverture was obliged to sue for peace. He was hoodwinked into an agreement and then shipped off to France where he would die, incarcerated, in 1803. None of this brought an end to the slaves' protests, however, and both 1802 and 1803 witnessed new uprisings. Many French troops succumbed to disease and, following the sale of France's lands in North America in the Louisiana Purchase of 1803, Bonaparte simply lost interest in events in the Western hemisphere.

It was time to draw a line under the colonial experience in Saint-Domingue. Following a final French defeat at the Battle of Vertières in November 1803, independence was proudly announced on 1 January 1804. A new nation named Haiti was born with Jean-Jacques Dessalines at the helm. After a short spell as governor-general, he was crowned emperor in October 1804. Sad to say, the new regime did not encapsulate the best of Enlightenment ideals.

Dessalines ordered the slaughter of remaining French colonists, ruled with more than a hint of despotism, and by 1806 he was assassinated by his political enemies. Haiti would continue to suffer from deep social divisions and financial insecurity, but the slave revolt that brought the nation into being remains one of the most remarkable events of the late 18th century.

REPUBLIQUE D'HAITI

Forerunner of the great revolution, François Mackandal, celebrated on a Haitian coin

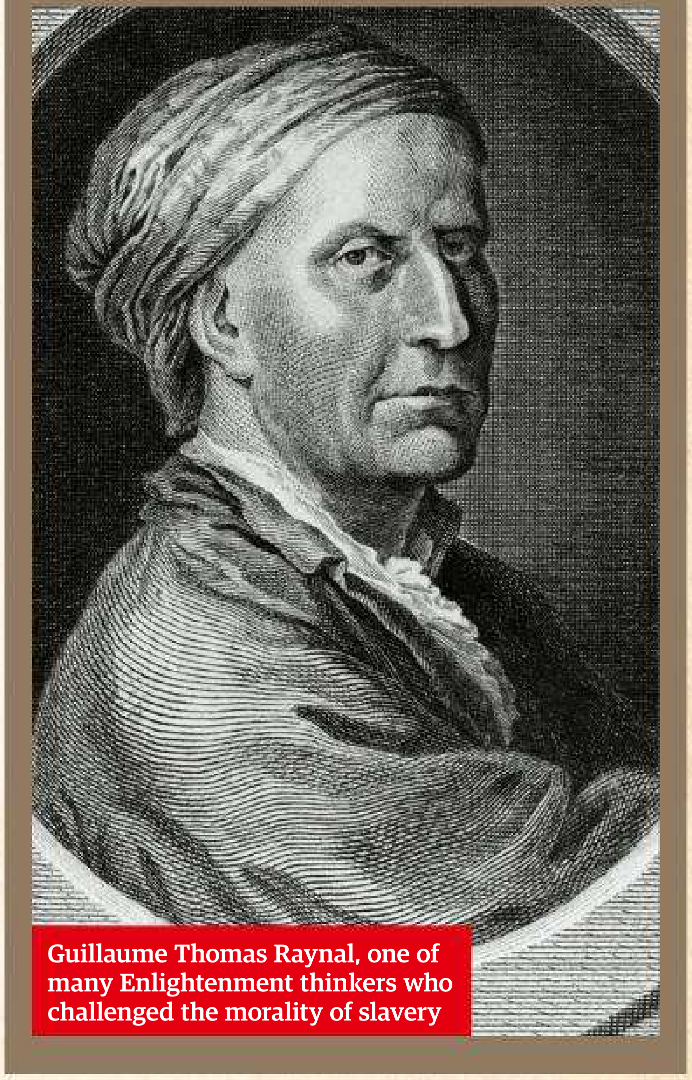
Shining light on a shadowy institution

What did the era's literati make of the blight of slavery?

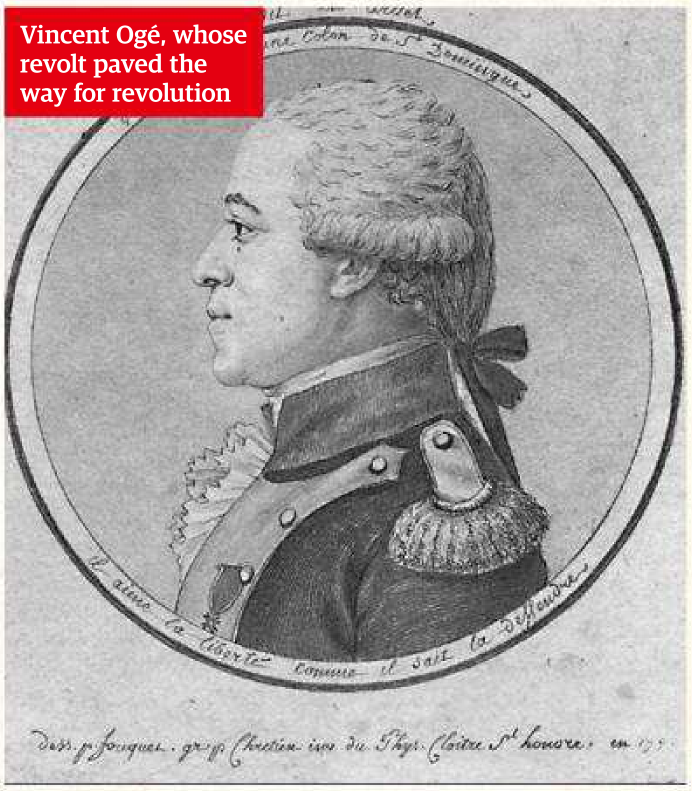
Many leading French intellectuals wrote stirring words about the horrors of slavery. In the opinion of the Marquis de Condorcet, Europe was "guilty not only of the crime of making slaves of men but, on top of that, of all the slaughter committed in Africa in order to prepare for that crime". For Diderot, slavery was "a trade which is built upon injustice and has only luxury as its object". The cause of total abolition was not always pressed, however.

Montesquieu's objections to slavery were rooted in technical philosophical musings more than compassion and he urged its amelioration rather than its annihilation: "To remove, on the one hand, its abuses and, on the other, its dangers." Guillaume Thomas Raynal, meanwhile, was passionate about the subject, declaring that "slavery destroys all the springs of the soul," but he did not suggest immediate abolition. He believed that a civilising mission in Africa was a necessary first step and that existing slaves in many parts of the Americas were not yet capable of defining their own destinies.

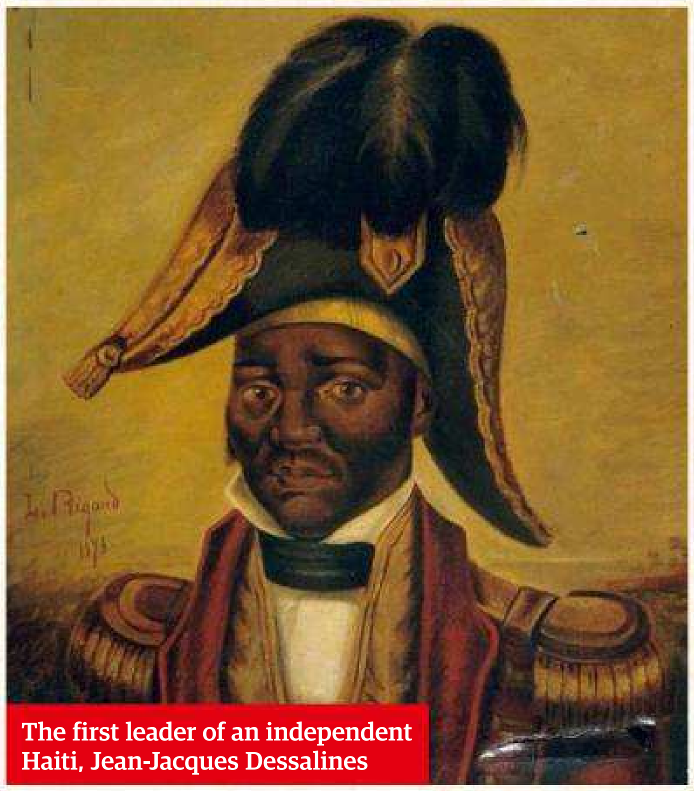
Raynal predicted that, unless matters improved, a slave rebellion might occur under a "new Spartacus" but while Toussaint Louverture may have gained direct inspiration from these words, Raynal certainly did not welcome the prospect of a slave uprising.



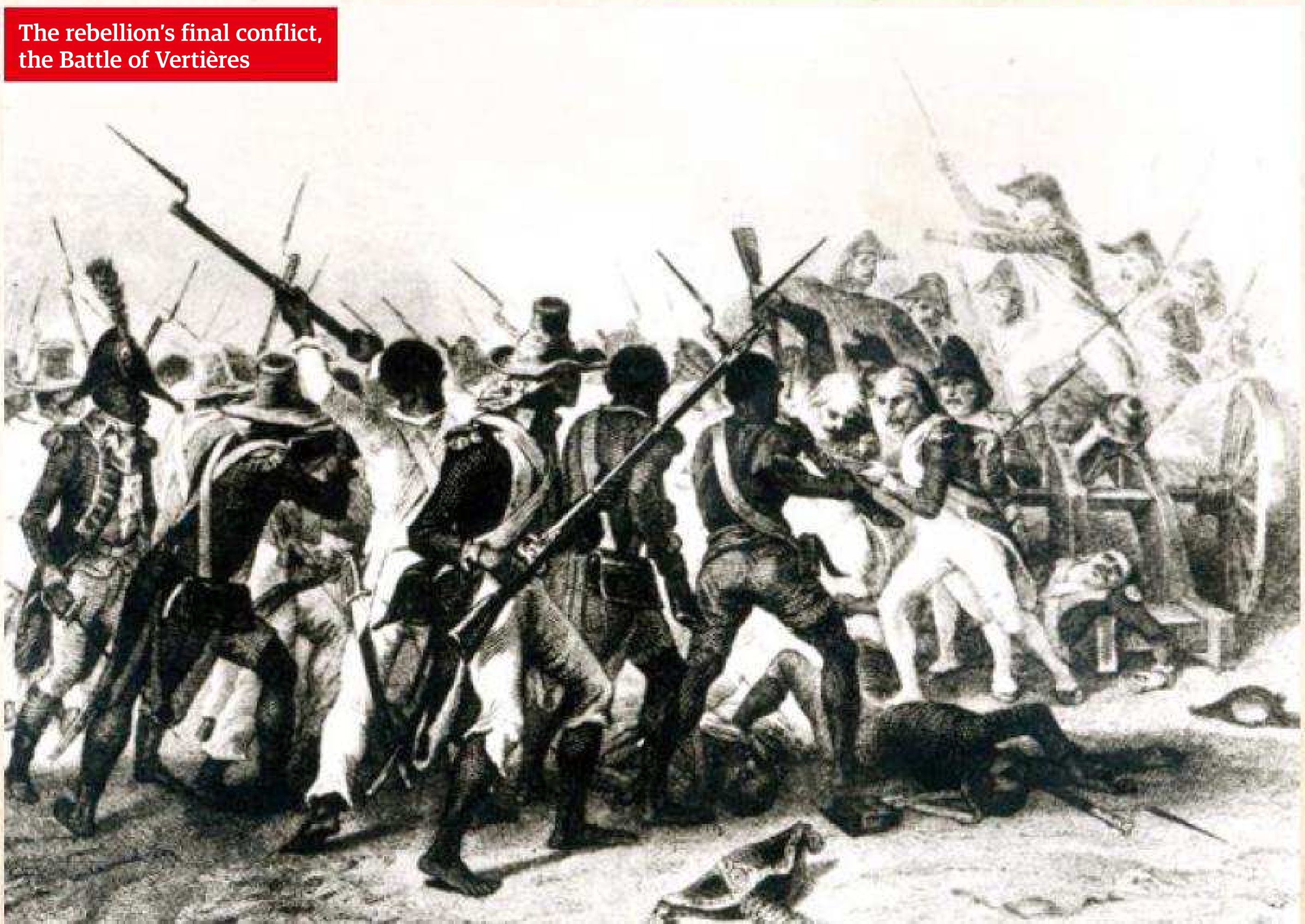
Guillaume Thomas Raynal, one of many Enlightenment thinkers who challenged the morality of slavery


Il aime la liberté comme il sait la défendre

Vincent Ogé, whose revolt paved the way for revolution



The first leader of an independent Haiti, Jean-Jacques Dessalines



The rebellion's final conflict, the Battle of Vertières

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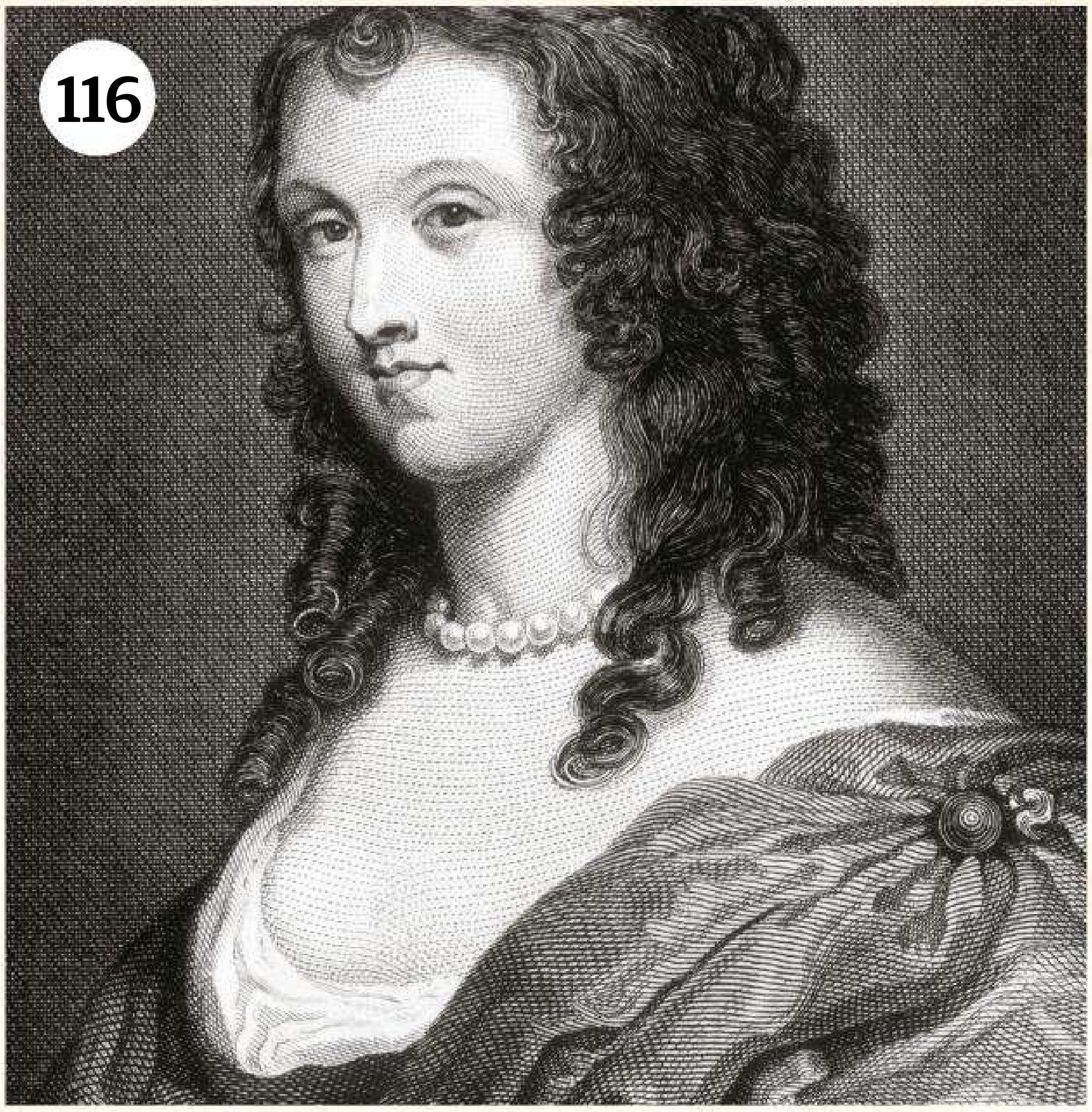

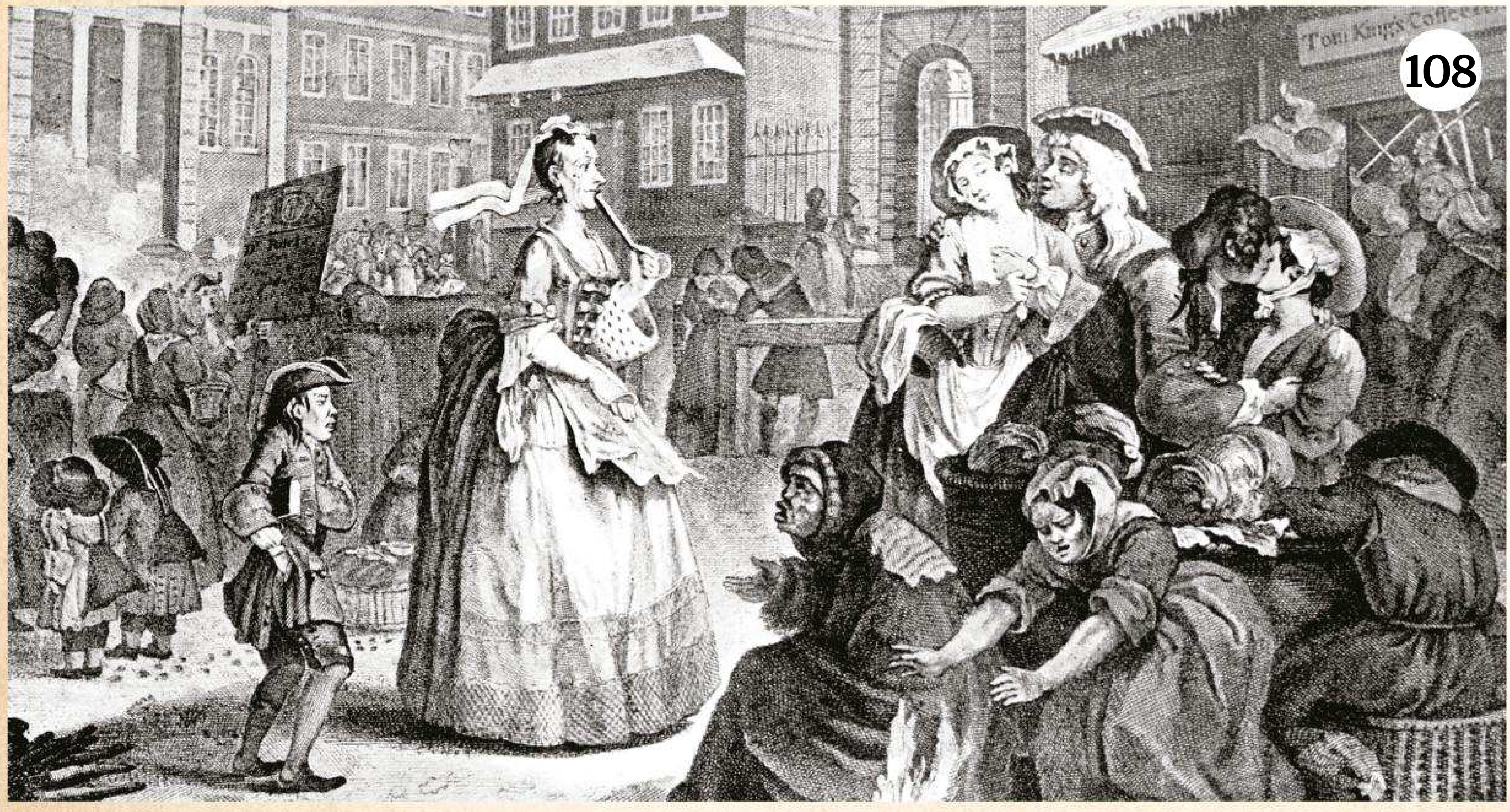

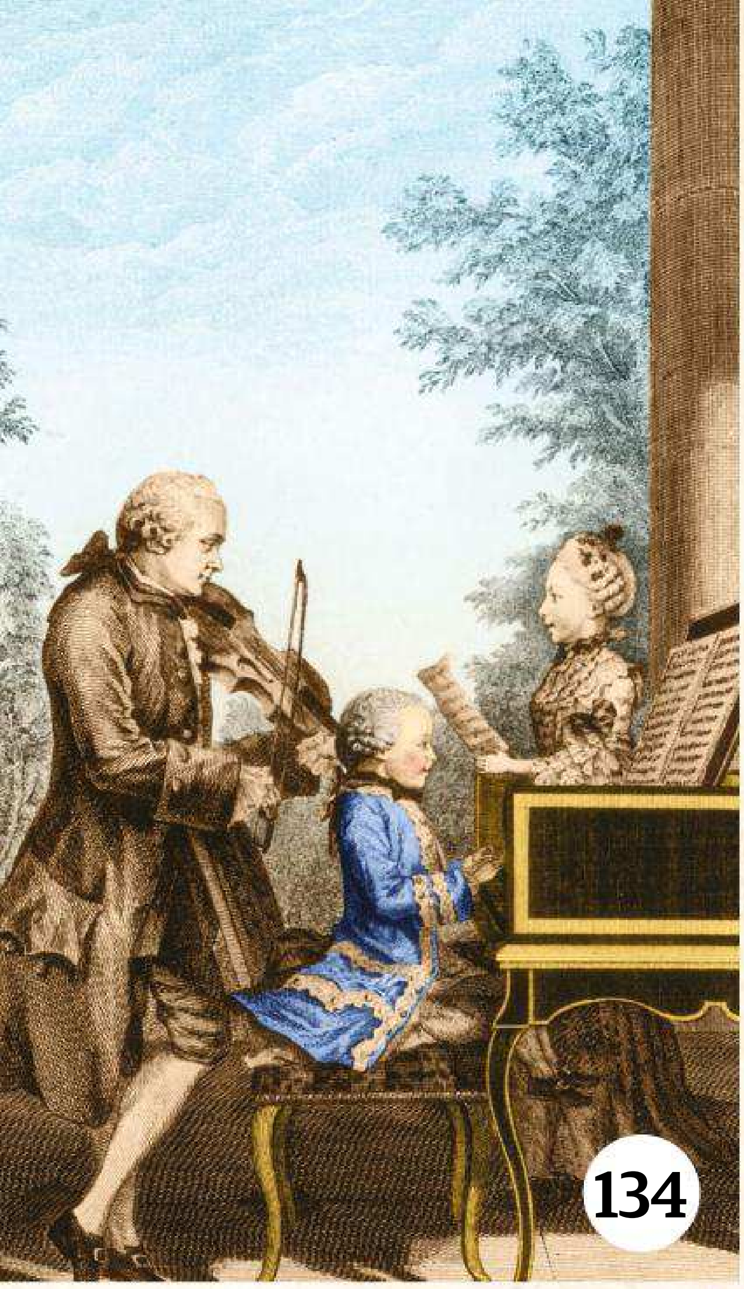

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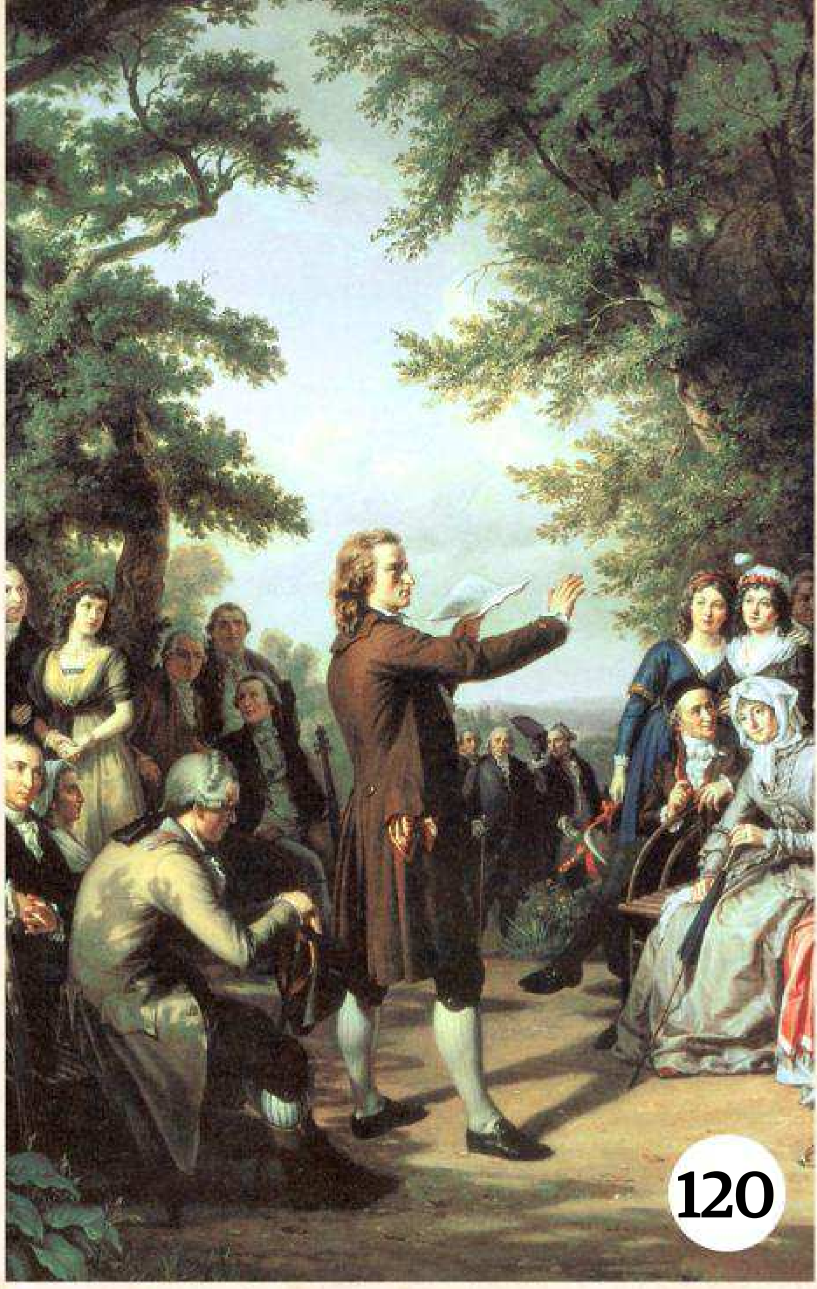

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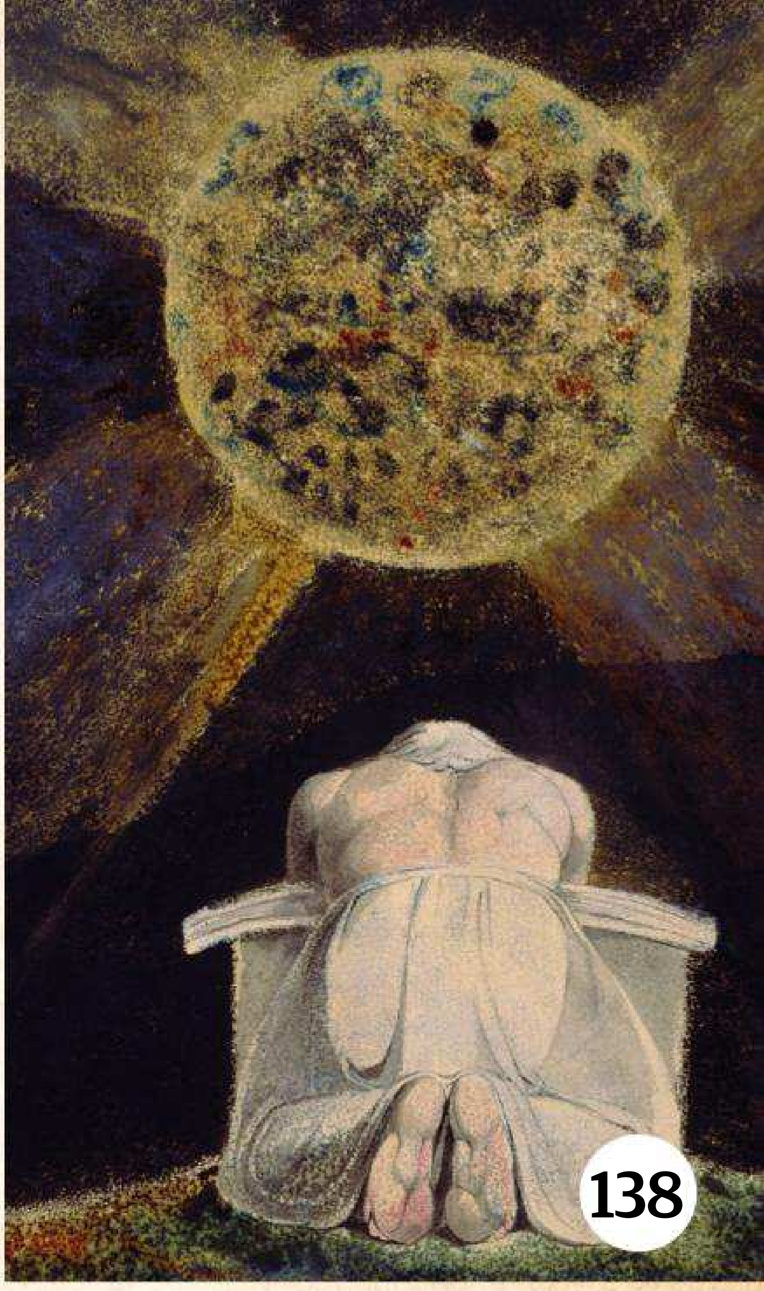

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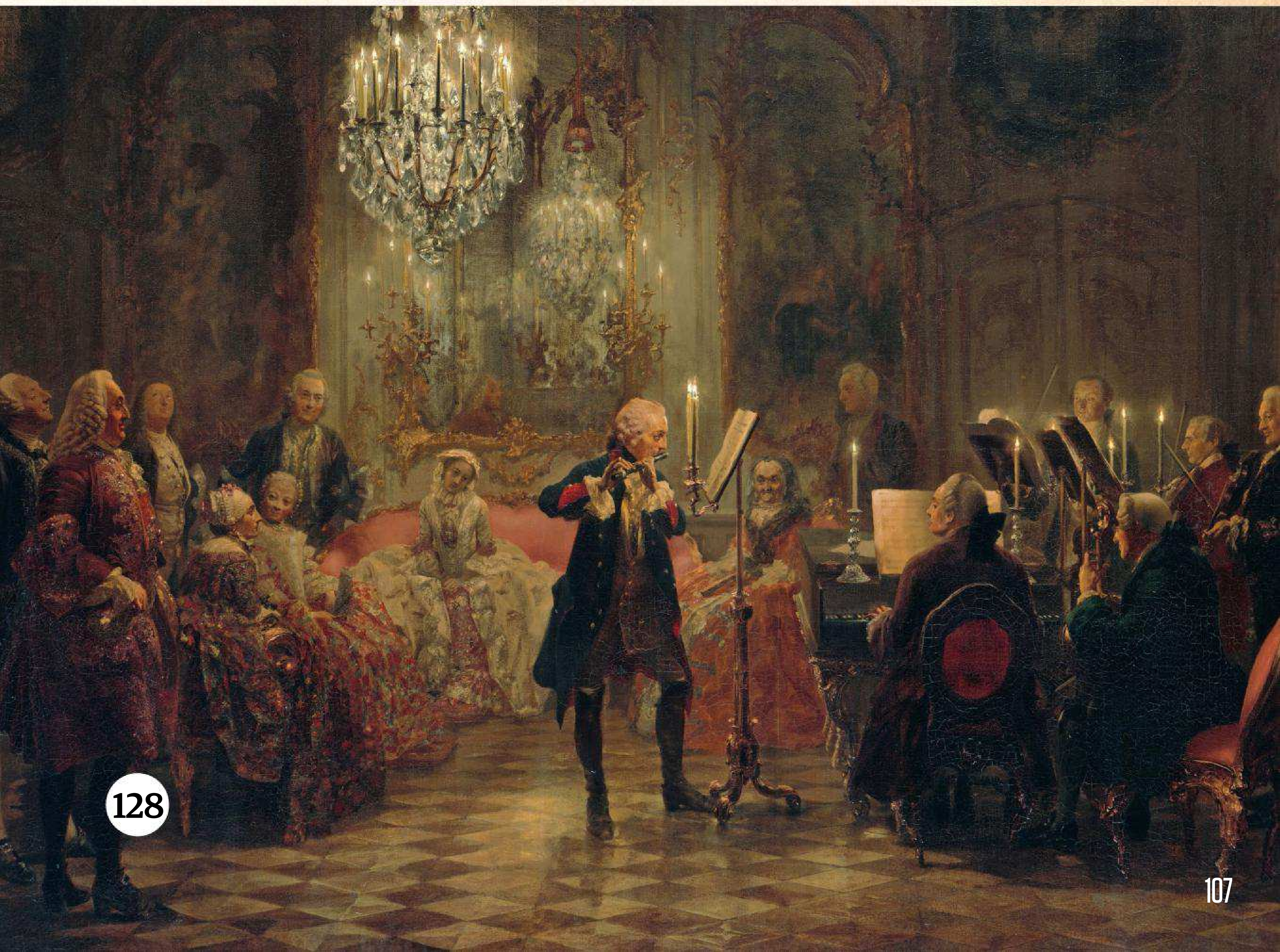

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The Spread of New Ideas

The Enlightenment was one of the most exciting periods in history, a time of unprecedented scientific discovery, intellectual progress and social upheaval. But how was its ideals and theories disseminated to the greater public?

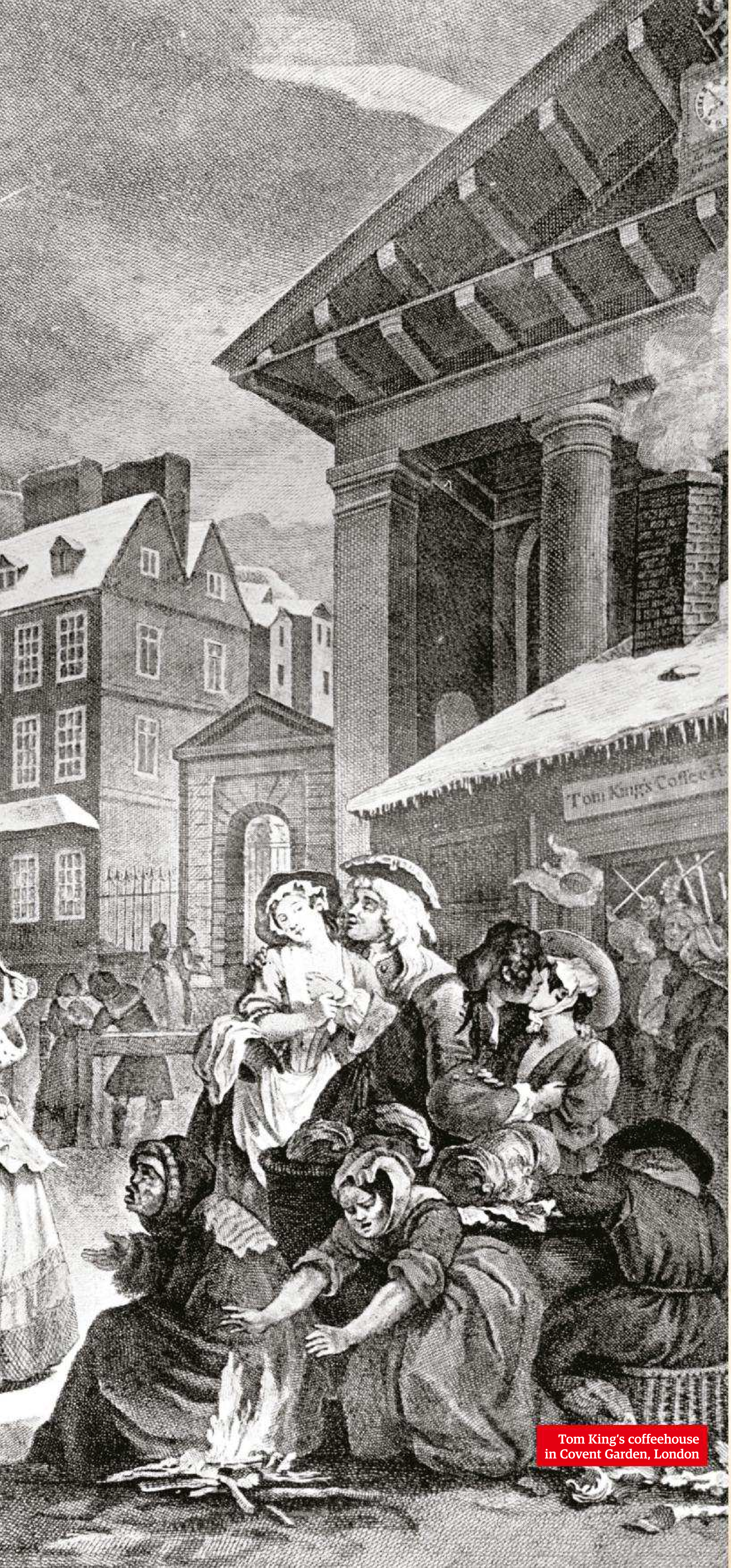
Words by Melanie Clegg

Not since the Reformation in the 16th century had an intellectual movement swept so decisively across Europe as the Enlightenment. It was an unprecedented and exhilarating period of time during which the exciting new ideas of philosophers, scientists and scholars spread like wildfire, fanned by the efforts of the enthusiastic laymen who had gathered together to discuss the exciting new advancements in various topics including philosophy, theology and the sciences.

Whereas the Reformation had, at first at least, been necessarily clandestine in nature thanks to the fact that it represented a challenge to the Catholic Church, the Enlightenment was notable from the very first for its public meetings, which gave intellectuals the opportunity to openly discuss the new ideas with each other. And as this enthusiasm for public debate and discourse grew, so too did a desire to disseminate these new theories - first via word of mouth in the salons and coffee houses of cultured European capitals and then, increasingly, by means of printed pamphlets and books, assisted by new printing technology which made the written word more accessible than ever before.

While the great philosophers, scientists and theologians of the period would always remain at the top of this intellectual food chain, their ideas would now filter down to the rest of the population with ever increasing speed and efficiency, bringing a whole host of new ideas to previously disenfranchised sections of society and creating an exciting and invigorating atmosphere that would eventually lead to enormous social change and, in some cases, even revolution.

> "The exciting new ideas of philosophers, scientists and scholars spread like wildfire, fanned by the efforts of the enthusiastic laymen"



Tom King's coffeehouse in Covent Garden, London

Coffeehouses and salons

From the middle of the 17th century, salons had been at the very heart of French intellectual and cultural life and would remain so for well over a century. Most commonly but not exclusively hosted by aristocratic women in their own homes in well-heeled areas of Paris such as Le Marais, they provided a convenient meeting place for anyone desirous to discuss intellectual matters, although their scope was still relatively narrow as most of their clientele was drawn from the liberal, cultured aristocracy and upper echelons of the bourgeoisie.

The best known and most popular salons, such as those of the Marquise de Rambouillet and Madame Geoffrin, took place on a weekly basis and would often see visiting philosophers, writers and scientists, with the hostesses vying to secure the most prestigious for their salon evenings. For French intellectuals they provided the opportunity to meet fellow enthusiasts, develop their own ideas and network with the great minds of the day, and they would play an important role in the spread of ideas.

When Louis XIV moved his court and a significant part of the aristocracy to Versailles, the Parisian salons took on a new significance as they provided a strong counterpoint to the ever-increasing aloofness and social and intellectual isolation of the royal court. While the courtiers at Versailles were afraid to criticise the king and the establishment that he presided over, the attendees of the Parisian salons were not at all cowed and indeed took pride in being as vocal as possible in their condemnation of the absolutism of Louis XIV and his successors - a stance that would get many of them into trouble.

Across the Channel in England, coffeehouses provided almost the same function, providing places and were, radically for the time, essentially egalitarian in nature, welcoming people from all classes, who could come together to discuss the hot political and social topics of the day as well as the new advancements in science, philosophy and theology. They were vibrant, busy, comfortable and, above all, open every day. They provided with a selection of all the latest pamphlets which their customers were welcome to read and take away with them. For the first time, ordinary people had somewhere to go if they wanted to socialise with like-minded individuals and coffeehouses soon became an essential part of urban culture, where exciting new ideas and theories could be exchanged and then taken out into the wider world.

Unlike salons, the conversations were not themed or regulated and everyone was free to enter regardless of political stance or intellectual ability, which made the debates much more lively and the ideas under discussion apt to be far more controversial. However, this freedom meant that coffeehouse culture was often at odds with the establishment, which, in the wake of the English Civil War, regarded such public gatherings as deeply suspicious and even potentially a precursor to revolt.

For most, however, the coffeehouses of London, Paris and other great cities were an exciting and innovative opportunity to meet new people, chat about the important events of the day and broaden their knowledge of the world around them and as such formed an essential part of everyday culture during the Enlightenment period.

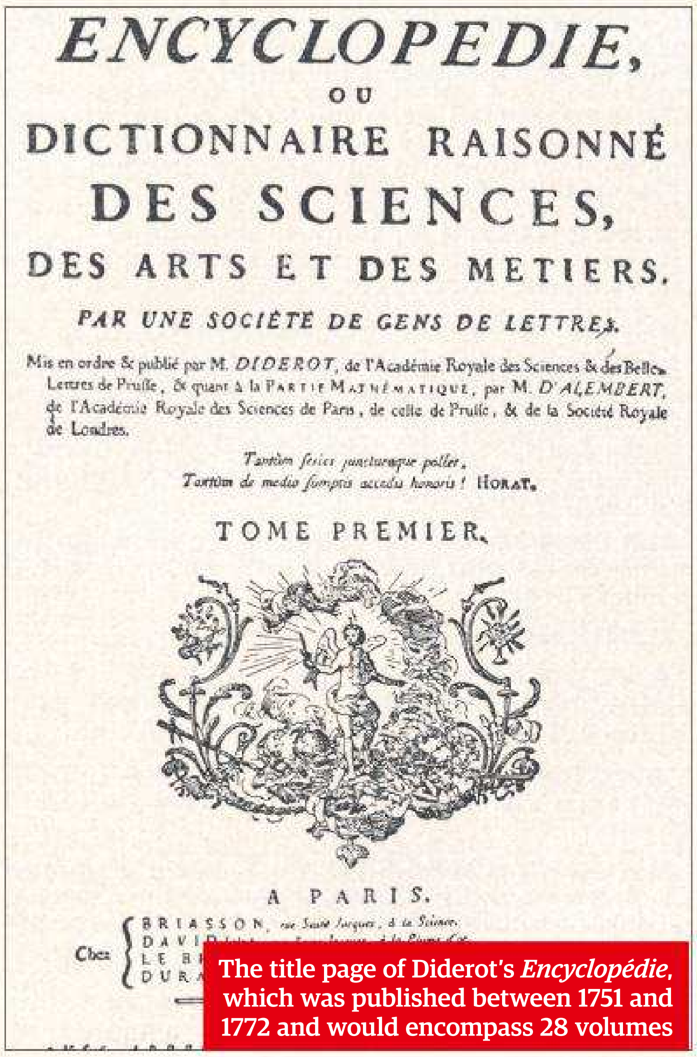
The printed word

Both salons and coffeehouses took pride in providing their clientele with an extensive range of all the latest literature, from simple pamphlets to books and even novels. *The Spectator* and *Tatler*, both of which are still read today, had their beginnings in the coffeehouse culture of the early 18th century, being specifically written to reflect the gossip and interesting ideas that their writers, which included Jonathan Swift, had overheard in the most popular London coffeehouses and in turn inspire even more debate and discussion about the most talked about topics of the day.

Although the backbone of the Enlightenment was the exciting new culture of getting together in public places to discuss current affairs and intellectual topics, with superb conversational skills and erudition being raised almost to an art form in their own right, the printed word was just as necessary as ever as a means of articulating and spreading the new ideas and enabling them to reach a broader audience. During the Reformation, there had been a heavy reliance on the verbal spread of ideas but literacy levels had increased significantly since the middle of the 16th century, especially among the lower classes and women, both disenfranchised groups that had previously been discouraged from learning to read.

However, books could still be prohibitively expensive and very few people had the means to maintain even a small collection of books, although most households in this period would

> "The backbone of the Enlightenment was the exciting new culture of getting together to discuss current affairs"



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DES SCIENCES,
DES ARTS ET DES METIERS.
PAR UNE SOCIÉTÉ DE GENS DE LETTRES.

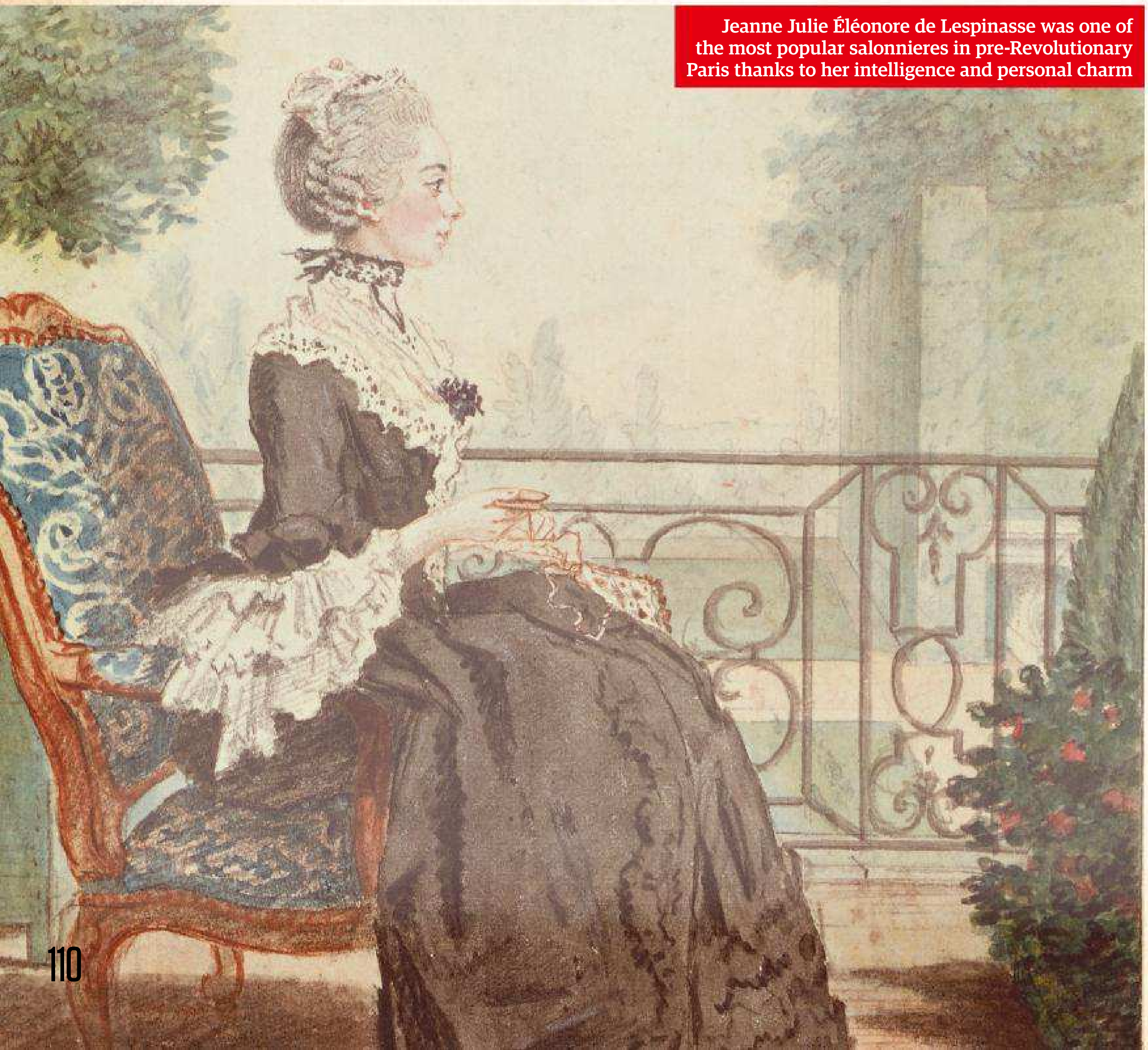
Mis en ordre & publié par M. DIDEROT, de l'Académie Royale des Sciences & des Belles-Lettres de Pruſſe, & quant à la PARTIE MATHÉMATIQUE, par M. D'ALEMBERT, de l'Académie Royale des Sciences de Paris, de celle de Pruſſe, & de la Société Royale de Londres.

Tantùm ſeries juncturaque pollet,
Tantùm de medio ſumptis accedit honoris! HORAT.

TOME PREMIER.

A PARIS,
Chez BRIASSON, rue Saint Jacques, à la Science.
DAVI
LE B
DURA

The title page of Diderot's *Encyclopédie*, which was published between 1751 and 1772 and would encompass 28 volumes



Jeanne Julie Éléonore de Lespinasse was one of the most popular salonnieres in pre-Revolutionary Paris thanks to her intelligence and personal charm

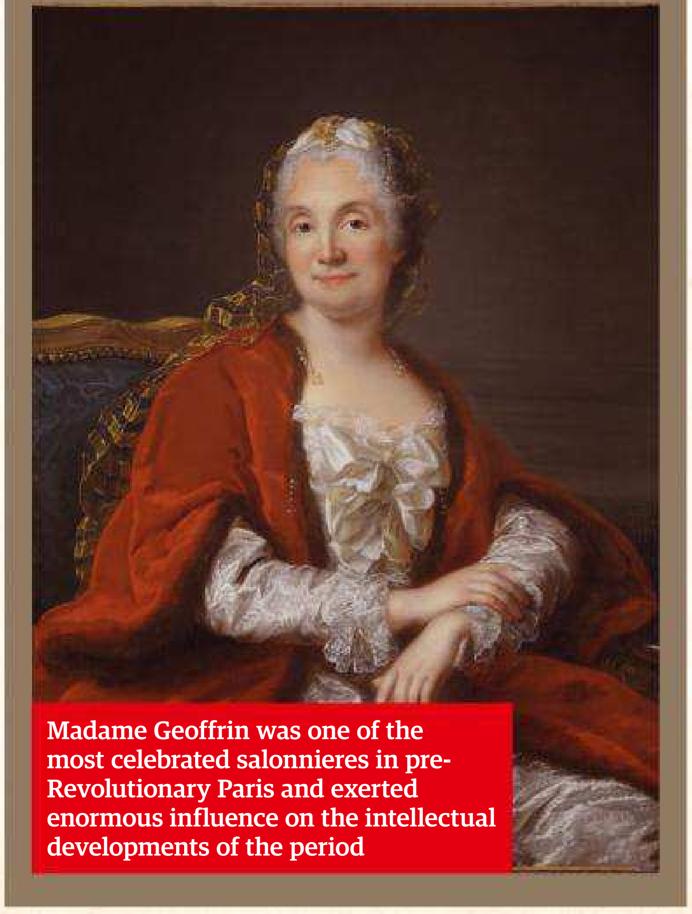
Madame Geoffrin

Marie Thérèse Rodet Geoffrin was perhaps the most significant of the female figures in the Enlightenment thanks to her salon and patronage of leading intellectuals

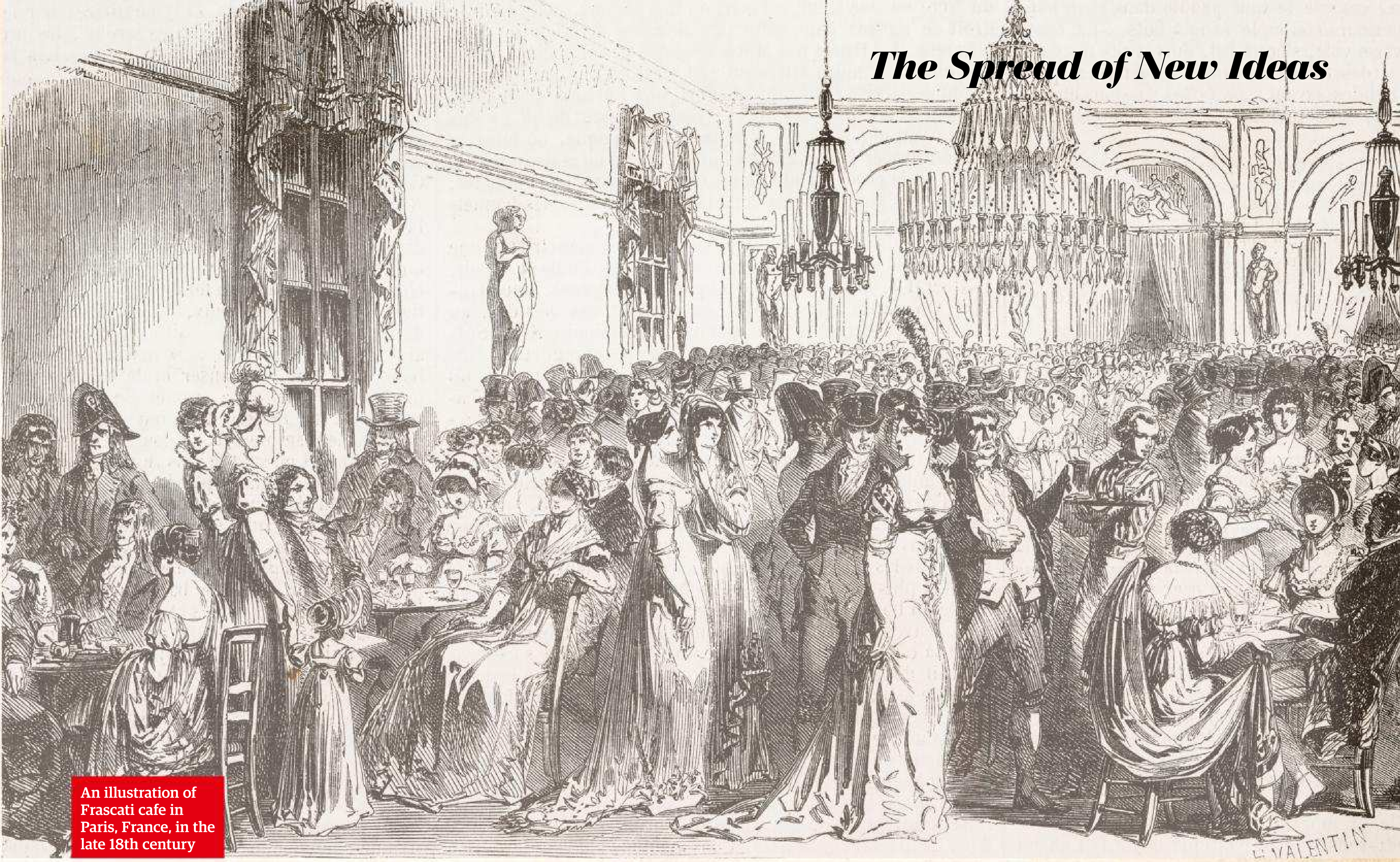
Born in Paris in June 1699, Madame Geoffrin's long life could be said to have spanned the golden age of the Enlightenment, which is entirely appropriate as she remains one of its most significant and influential female figures. Frustrated by her lack of formal education, the teenaged Geoffrin decided that she had to educate herself and established her salon, where she entertained all of the leading intellectuals of the day – ostensibly to learn from them.

Keenly intelligent, discerning, well read, beautifully mannered and amusing, Madame Geoffrin was the very epitome of an urbane, erudite salonniere and her gatherings were an enormous success, attracting the likes of Diderot, Voltaire and Rousseau while she herself became famous in her own right thanks to her wide correspondence with notable intellectuals and royal personages all over Europe.

Although salons had existed since the previous century, Geoffrin is generally considered to have created the archetypical salon that we associate with the Enlightenment period with its polite discussion of philosophy, weekly meetings, prestigious guests drawn from the worlds of academia, art, science and literature, and serious dedication to promoting and expanding Enlightenment ideas.



Madame Geoffrin was one of the most celebrated salonnieres in pre-Revolutionary Paris and exerted enormous influence on the intellectual developments of the period



An illustration of Frascati cafe in Paris, France, in the late 18th century

probably own a Bible. It's no coincidence therefore that this rise in literacy coincided with the rise of public libraries, which gave people the means to borrow books without the commitment of actually buying them. This explosion in literacy levels was also mirrored by a dramatic change in the types of reading materials that were being consumed by the general populace. Whereas once the most popular type of literature was religious books, now there was a huge demand for novels, especially those by Richardson and Fielding, as well as more intellectual tomes about philosophy, natural history and science. People from all classes were becoming increasingly aware that the world around them was changing rapidly and they were keen to keep abreast of the latest developments in a way that had never been seen before.

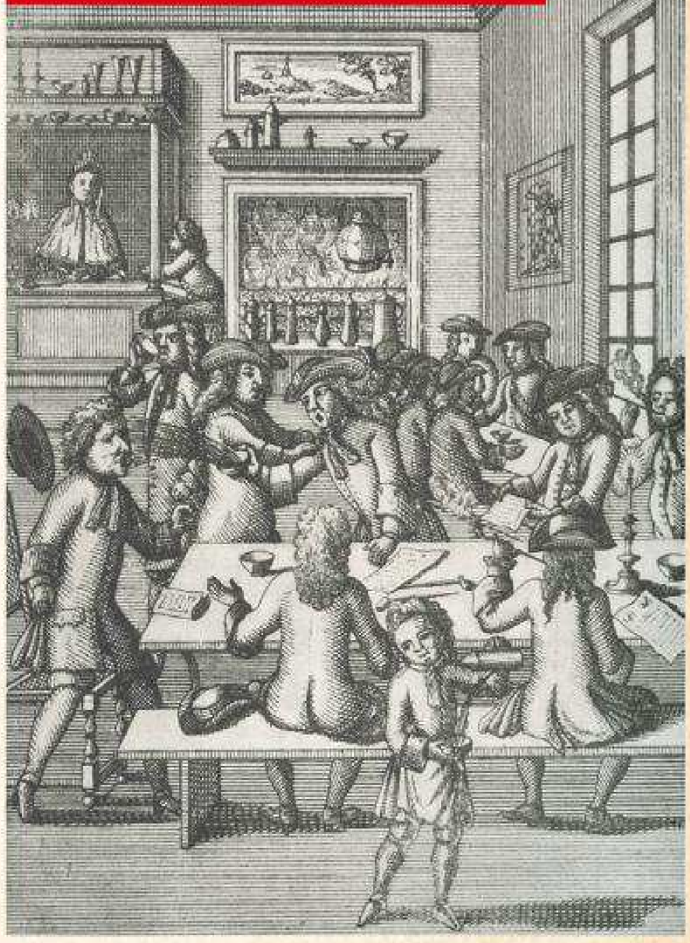
In 18th-century France, the literary superstars were undoubtedly the Philosophes, a collection of intellectuals, mostly but not exclusively male, whose writings encompassed a whole plethora of topics besides philosophy. Habitués of the Parisian salons, they were controversial figures and openly scornful of both the royal court and the Catholic Church, with many of them being self-proclaimed atheists or deists (accepting God's existence but believing that he had taken no further interest in the world after its creation), which got them into serious trouble with the authorities and resulted in much of their work being suppressed because it was considered blasphemous.

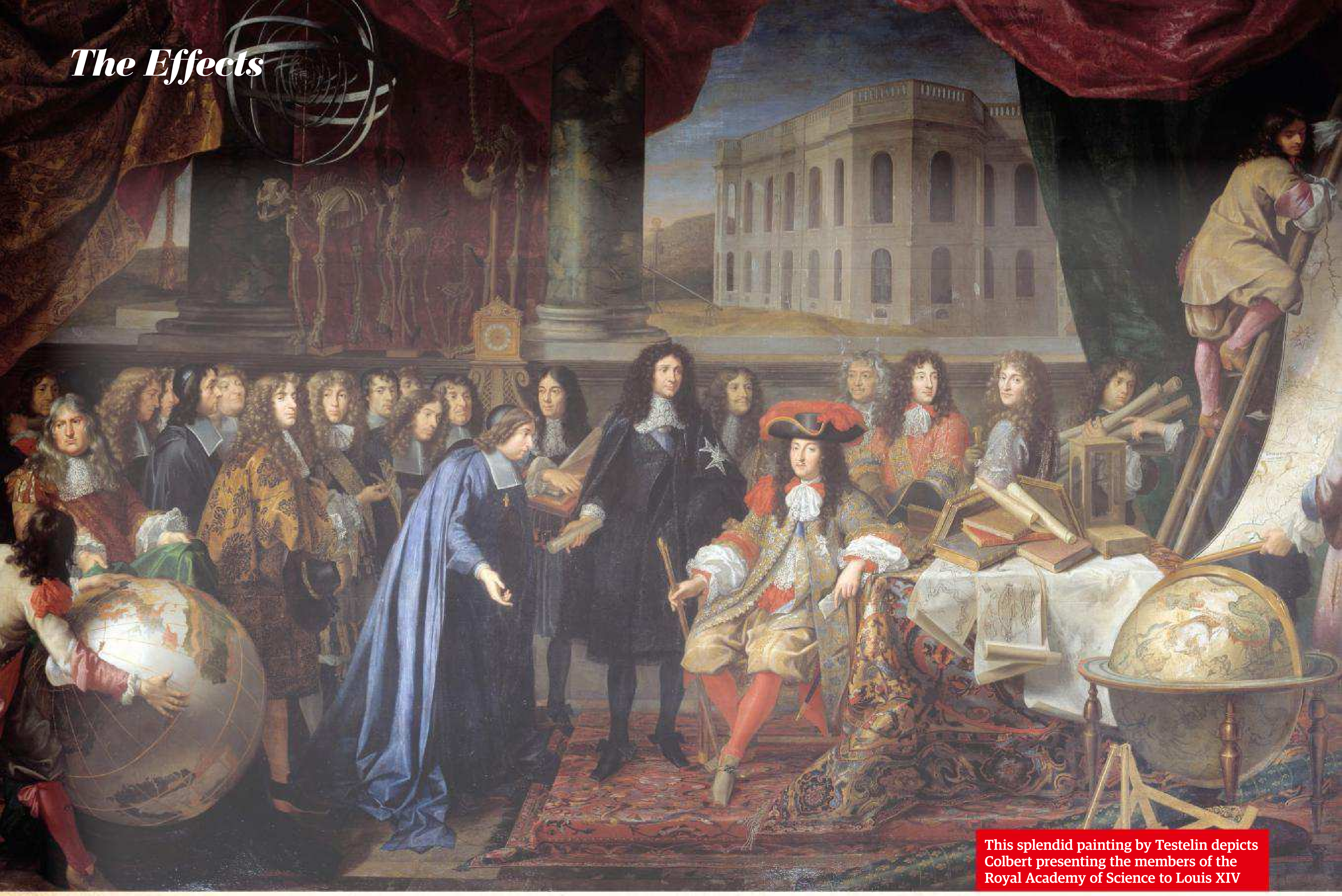
The Philosophes were treated like celebrities in the Parisian salons but were keen not to become too insular, instead devoting their energies to creating a Republic of Letters, a huge network of intellectuals, scientists and other thinkers spread across Europe and even parts of America. Founded in the 17th century and peaking in the mid-18th century, the Republic of Letters was intended to transcend the artificial boundaries imposed by gender, race, religion and nationality, instead bringing people together as intellectual equals.

These men of letters, which included some of the most talented and celebrated thinkers of the day, maintained enthusiastic correspondences and cheerfully swapped ideas, scientific theories, pamphlets and books. Although Paris remained at the heart of Enlightenment thought for many years, the activities of the Republic of Letters ensured that its influence was felt far and wide around the world and that it was possible for everyone to get involved in it.

While the Republic of Letters had a huge impact on the spread of Enlightenment ideas, the Philosophe circle's most significant impact on the intellectual activities of the mid to late 18th century was the publication of the *Encyclopédie*, which was published between 1751 and 1772 under the auspices of the leading Philosophe Denis Diderot. A precursor to modern encyclopaedias, this enormous series, which encompassed 28 volumes, with 71,818 articles and 3,129 illustrations, was the work of several contributing authors, including Rousseau, Voltaire and Jaucourt, and had the lofty aim of gathering together all of the knowledge in the world so that it could be shared with everyone and in doing so change the way they thought because everyone would have the opportunity to be equally well informed. It was a mammoth task that took several years to complete, but the contributors were spurred on by their vision and its suppression by the king and pope, and the fact that some of them ended up being imprisoned due to the controversial nature of their entries criticising the Catholic Church and monarchy did not deflect them from their great project and determination to bring Enlightenment ideas and the gift of universal knowledge into every home in the land.

This contemporary engraving shows a lively debate getting underway in a London coffee house. Meetings could get very rowdy!





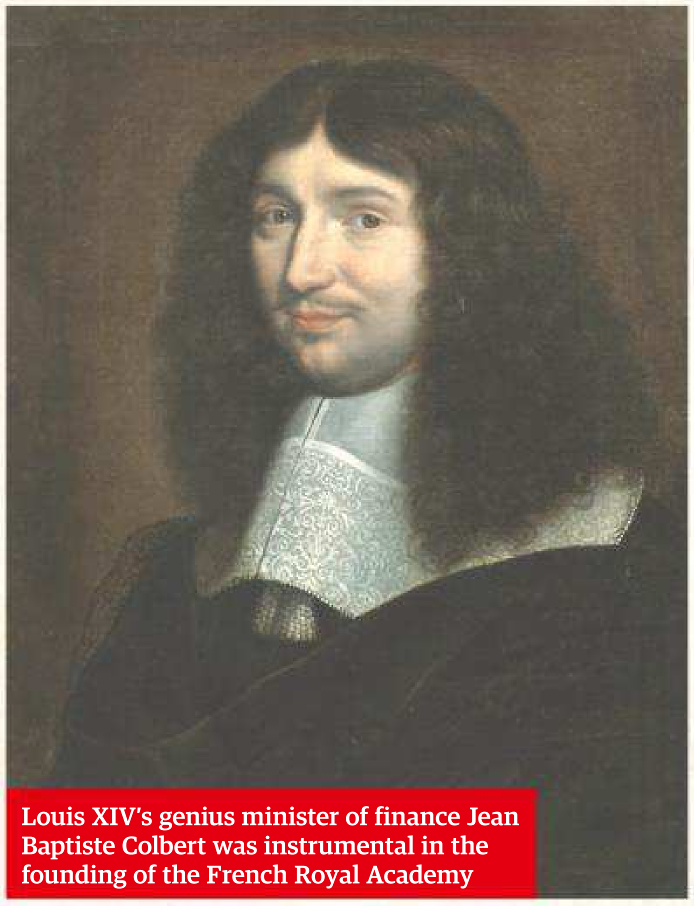
This splendid painting by Testelin depicts Colbert presenting the members of the Royal Academy of Science to Louis XIV

Academies

While the intellectual elite were exchanging their views and opinions in salons and coffeehouses, there was also a movement towards promoting a more organised academic dissemination of Enlightenment ideas. While the arts, philosophy and theology were felt to be well served by the literature that was being produced, there was an increasing worry that the sciences were relatively neglected and in need of a more organised approach that would encourage serious formal research as well as a discussion of theories.

To this end, the Royal Society for Improving Natural Knowledge was formed in London in 1660 by a group of independent scientists and granted a royal charter two years later by Charles II, who took a close personal interest in scientific matters. Meetings took place every week and involved scientific lectures, debates and experiments, which were conducted by members. The Royal Society also published books and pamphlets, which could be bought and enjoyed by the general public as well as fellow scientists.

On the other side of the Channel, the French Academy of Sciences was founded by Louis XIV in 1666, with the assistance of his minister of finance Jean-Baptiste Colbert. Like its British counterpart, the French Academy was originally informal in nature before becoming more organised. Meetings were regular and, like those of the Royal Society, involved discussion and experiments, all of which were intended to increase public knowledge of the sciences. The emphasis was firmly on science and members were banned from discussing more controversial matters such as theology, philosophy and current affairs at their meetings.

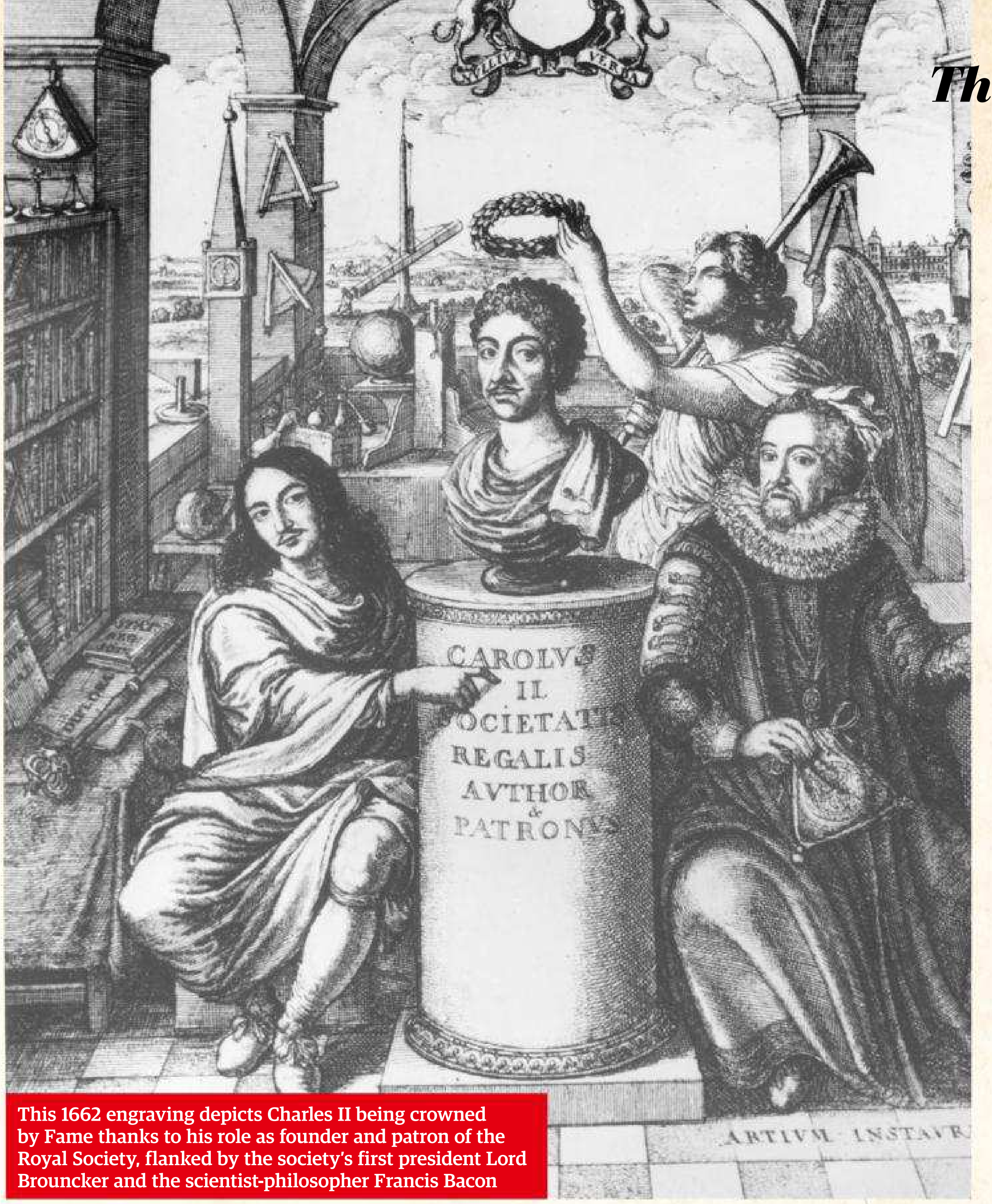


Louis XIV's genius minister of finance Jean Baptiste Colbert was instrumental in the founding of the French Royal Academy

In 1699, Louis XIV gave permission for the Academy to be renamed the Royal Academy of Sciences and moved it to a grand new location in the Louvre Palace, where it began to produce an annual journal describing the lectures, discussions, theories and experiments that had been achieved during the year, written in a way that made them accessible to enthusiastic laymen. As with the Royal Society in London, there was an emphasis on sharing new ideas and promoting a general interest in science and the good that it could do for society.

Although the members of both academies were primarily drawn from the elite, they were still keen to encourage the aspirations of new scientists, and to this end they organised a series of regular competitions known as the Concours Académiques, which were modelled on academic contests that had been popular during the Middle Ages when promising scholars had submitted art, poetry and essays. In the past, such competitions had primarily focussed on theology. Now, however, there was a decidedly scientific bias with entrants being asked to write about such diverse topics as women's education, the emancipation of slaves, the theories of Isaac Newton and, controversially, "critical ruminations on the social and political institutions of the Old Regime".

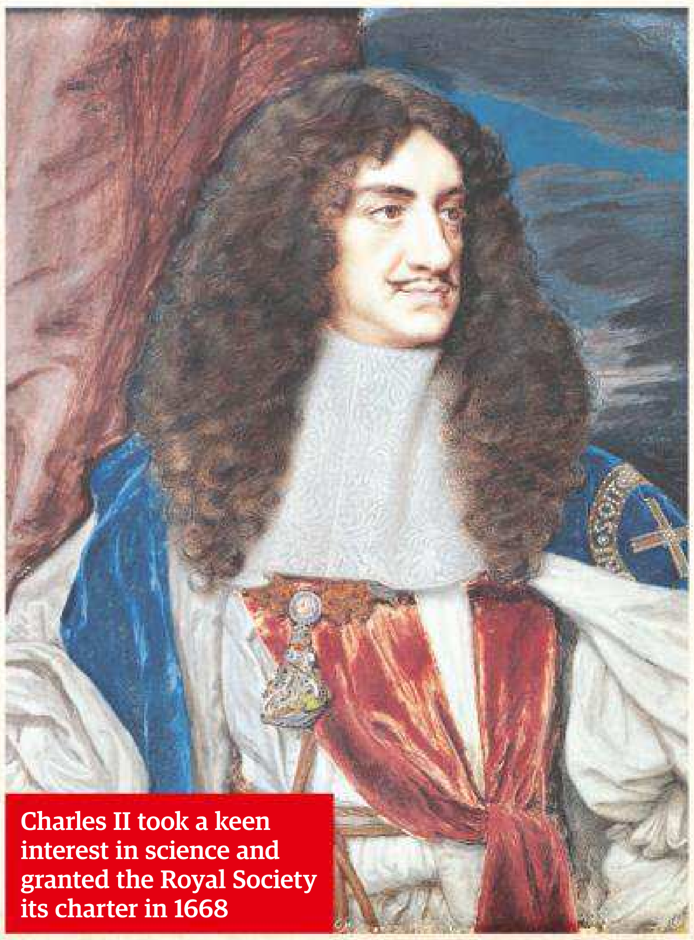
Whereas once the completions had only been open to the elite students of the French universities now, in keeping with the egalitarian nature of the Enlightenment, they were open to everyone and entries were submitted anonymously which meant that contestants could not be discriminated against because of their social class, race or gender. While



This 1662 engraving depicts Charles II being crowned by Fame thanks to his role as founder and patron of the Royal Society, flanked by the society's first president Lord Brouncker and the scientist-philosopher Francis Bacon

most of the winners were still well-educated men from the middle and upper classes, there is clear evidence that the anonymous submission system encouraged entries from the working class, some of whom even won prizes. There were also significant entries from women, who were normally excluded from such competitions, with 49 of the 2,300 contests held in France during this period being won by female entrants. It would be quite some time - over three centuries, in fact - before they were admitted to the lofty heights of actually being allowed to join the Royal Society and participate in their meetings, though.

Thanks to their publications, public experiments and competitions, the Academies of France and England did much to encourage public interest in the sciences as well as other branches of learning during the Enlightenment. There had always been a sense that such interests were the exclusive preserve of the educated metropolitan elite, reinforced by the Catholic Church's often ambiguous if not downright hostile attitude towards scientists and their experiments, with several being accused of blasphemy and heresy thanks to their theories. Now, though, thanks to the Academies and their enthusiasm for sharing their work with the general public, science began to be viewed as much more accessible and indeed a necessity if one was to have a full and proper understanding of the rapidly changing and exciting world of the late 17th and 18th centuries.



Charles II took a keen interest in science and granted the Royal Society its charter in 1668

> "There were also significant entries from women, who were normally excluded from such competitions"

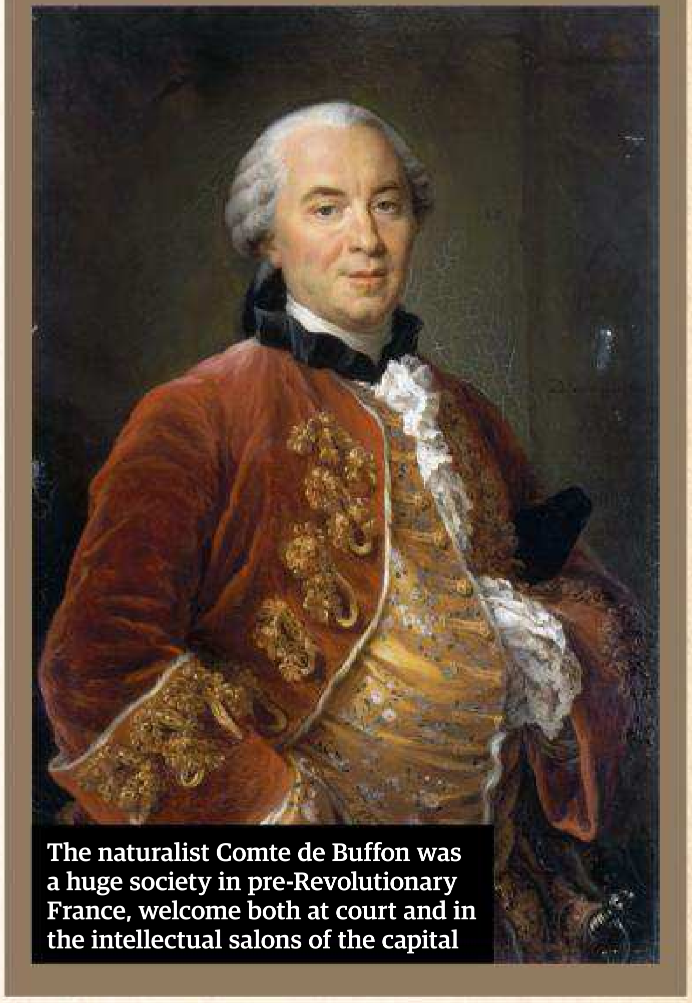
◆

Natural history

The study of the world that surrounds us grew to unprecedented levels during the Enlightenment

As public interest in the sciences rose throughout the 18th century thanks to the efforts of the Royal Society, academics and the Philosophes, people became particularly fascinated in natural history, which had always been one of the more accessible of the sciences. When the Jardin des Plantes - a huge botanical garden designed to showcase plants from all over the world - was established in Paris in 1635, it was an enormous success and would remain popular throughout the Enlightenment.

However, natural history was still regarded as primarily the preserve of the upper classes, who were most able to afford the expensive, lavishly illustrated books about plants, insects and animals that were being produced. Most popular of all was the 44-volume *Histoire Naturelle*, published between 1749 and 1809 by Georges-Louis Leclerc, Comte de Buffon, who became an enormous celebrity thanks to his work and was much mourned when he died in 1788. Buffon believed that all human races had the same origin, probably in Asia due to its good climate and temperate conditions, and would later be described as 'the father of evolutionism', credited for bringing discussion of evolution into the realm of science.



The naturalist Comte de Buffon was a huge society in pre-Revolutionary France, welcome both at court and in the intellectual salons of the capital

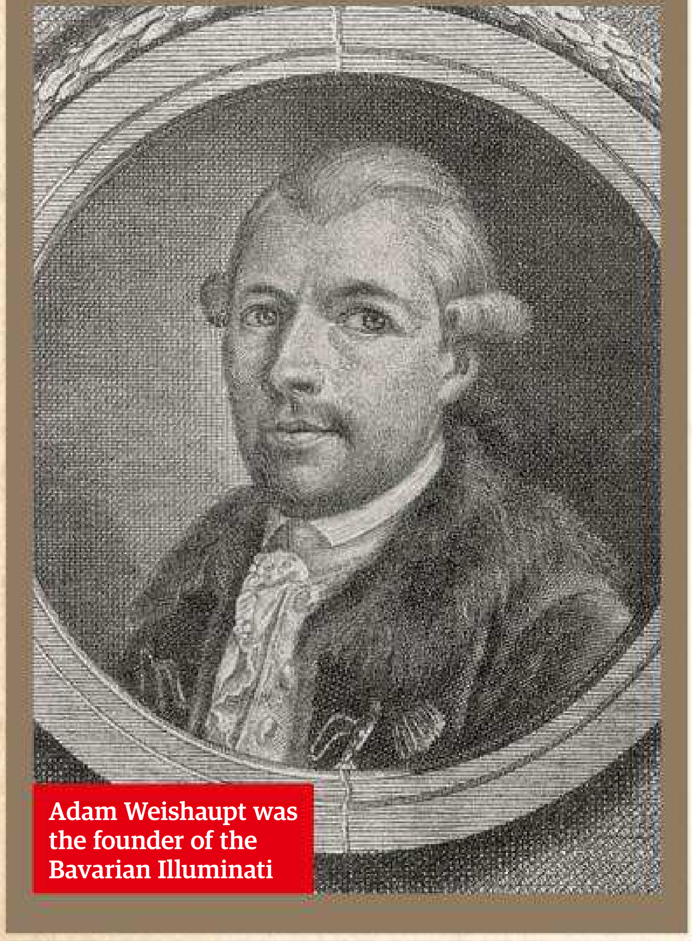
The Bavarian Illuminati

While intellectuals and nobles in Britain and France flocked to Freemasonry, their German counterparts were being attracted to an even more secretive and shadowy society

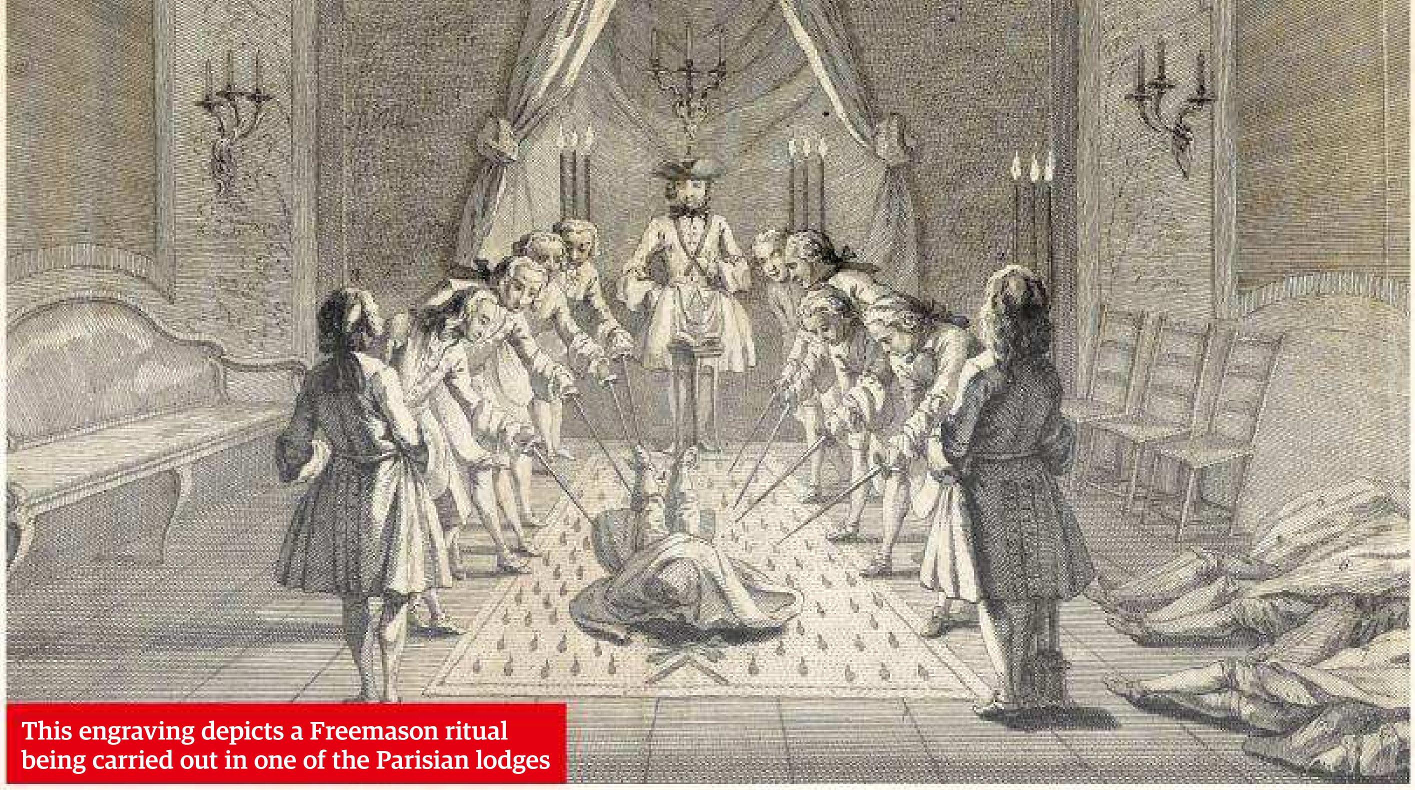
As interest in public societies and academies grew, some intellectuals were finding themselves more drawn to the darker world of secret societies such as the Freemasons and the Bavarian Illuminati. Founded on 1 May 1776 by the German philosopher Adam Weishaupt, the Bavarian Illuminati had the goals of opposing abuses of state power, the oppression of the Catholic Church and all forms of superstition – which naturally made it extremely attractive at a time when intellectuals all over Europe were enthusiastically and publicly doing exactly the same thing.

Naturally, its anti-religious stance brought it into conflict with the Catholic Church and the Bavarian Illuminati would find itself outlawed on more than one occasion. Meanwhile, its secrecy, more profound even than that of the Freemasons, would draw accusations that it was meddling with national affairs and even responsible for the French Revolution thanks to its underground machinations – accusations that continue to this day thanks to various conspiracy theories which link the shadowy Illuminati to significant events all over the globe.

However, despite the vilification and suspicion of the Church and State, several prominent Germans, including Goethe and Duke Ferdinand of Brunswick, were part of the group, whose members were primarily drawn from the aristocracy and intellectual elite before it was finally suppressed in 1785.



Adam Weishaupt was the founder of the Bavarian Illuminati



This engraving depicts a Freemason ritual being carried out in one of the Parisian lodges

Societies

While membership of the Royal Academies was a prestigious honour that was conferred only on members of the scientific elite, less exalted intellectuals were nonetheless catered for by a variety of private societies. Although salons and coffeehouses would remain popular throughout the Enlightenment period, they had the disadvantage of being open to almost everyone and by the end of the 17th century, it was becoming increasingly clear that there was definitely a need for private societies where academics and enthusiasts could regularly meet up to discuss intellectual matters. The first such debating societies were established in London at the beginning of the 1700s and would remain an important part of society for the rest of the century, acting as a precursor to the gentlemen's clubs that would become popular later on.

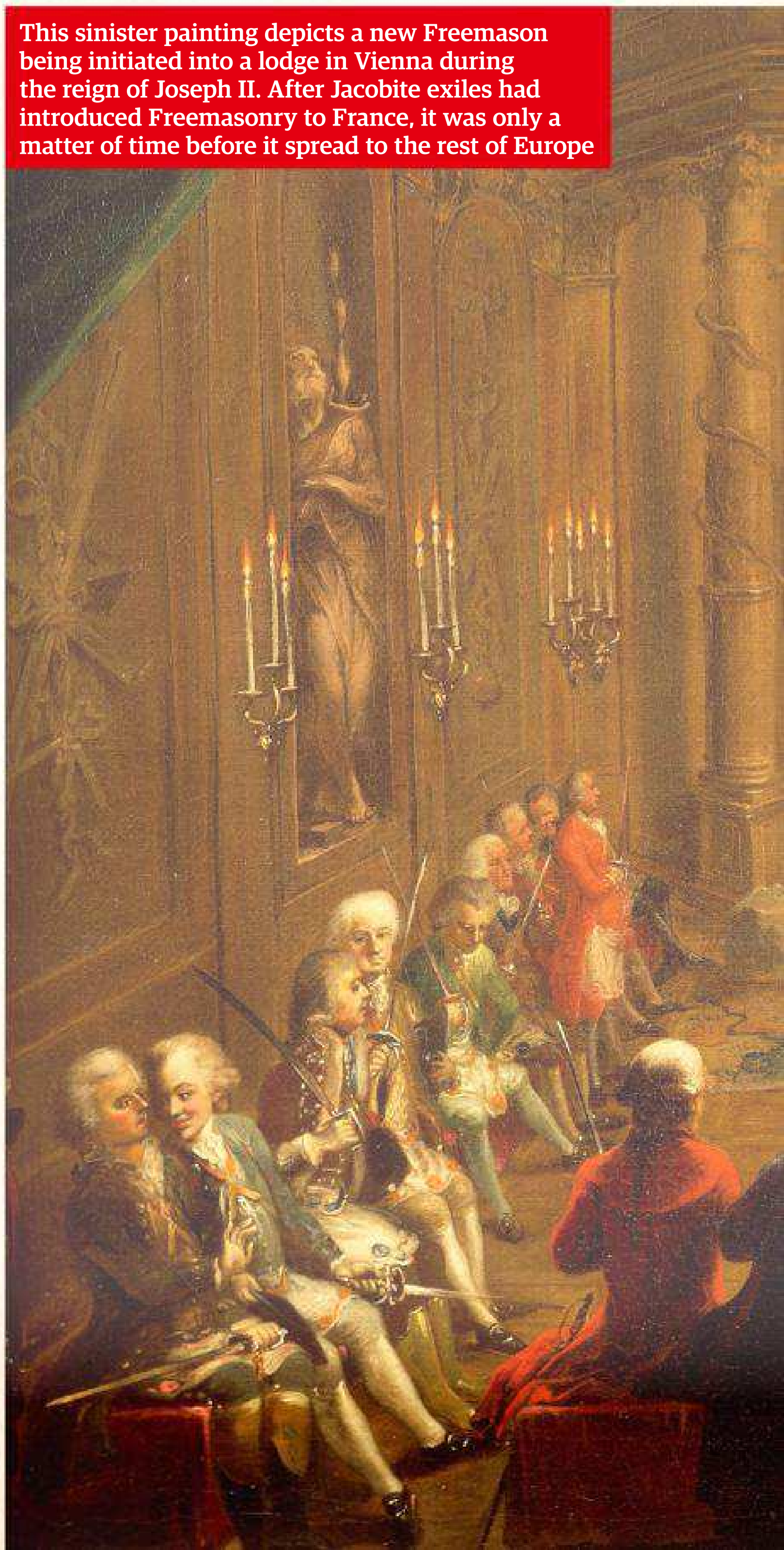
It's not known precisely when the first debating societies were established but it's clear that they originated in the coffeehouses of London. They could often be extremely rowdy in nature before they gradually became more organised and exclusive, meeting in halls and rooms where refreshments were provided and the members were expected to be on their best behaviour, which naturally significantly altered the tone of the meetings into something much more sophisticated.

Although most of the members would be drawn from the educated middle and upper classes, the admission fee to attend a debating society session was just sixpence, which made it reasonably accessible to enthusiasts from the lower orders as anyone was welcome to attend so long as they were able to pay. Once inside, members would be expected to discuss the topic of the day, which would have been advertised in the London newspapers beforehand and might encompass anything from a question about the supremacy of the Catholic Church to the meaning of life itself.

As with the salons, women were tolerated if not actively encouraged to attend. However, during this period to be thought of as a 'bluestocking' – a pejorative expression for any woman who enjoyed intellectual pursuits – was rather frowned upon so many women lacked the confidence to attend meetings. But for those who were prepared to risk public disapproval the rewards were great as for the first time women were given the opportunity to mix with like-minded people of both sexes and a chance to make their voices heard. It's not surprising, therefore, that by the end of the century, several women-only debating clubs had sprung up in London, which enabled them to discuss the topics that were most pertinent to them as well as current affairs and the issues of the day.

By the end of the 18th century, there were dozens of established debating societies in London and the major cities of Britain, many of which catered to very specific types of topic such as women's rights, slavery, religion and natural history. The most common topics, though, were rather radical and even controversial in nature and questioned the authority of the Church, monarchy and hitherto established order, which naturally led to some extremely heated debates. It's hardly surprising that the debating societies were wildly

This sinister painting depicts a new Freemason being initiated into a lodge in Vienna during the reign of Joseph II. After Jacobite exiles had introduced Freemasonry to France, it was only a matter of time before it spread to the rest of Europe



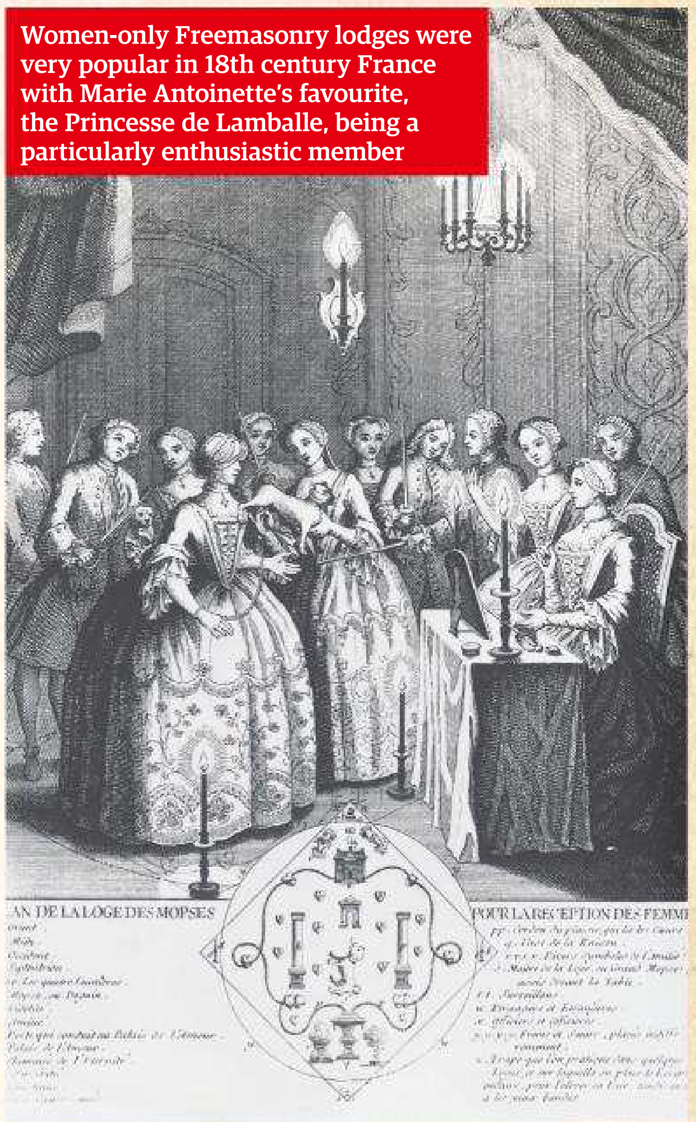
popular with the largest and most established debating societies in the capital, such as the Athenian, Sylvan Debating Club and Westminster Forum, regularly welcoming over 1,000 people to their events, making them one of the most significant factors in the spread of Enlightenment ideas during the 18th century.

However, while thousands were paying to get crammed into the public meetings of the great debating societies of the time, the Bavarian Illuminati and Freemasons, far more secretive forms of societies, were operating on an entirely different scale. Although Freemasonry had existed in a relatively rudimentary form since the 15th century, it was in the 17th and 18th centuries - initially in Scotland before spreading to France with exiled Jacobites - that it really began to establish itself and take the form that it still exists under today with a strict hierarchy, mysterious rituals and regular meetings.

Many of the leading figures of the Enlightenment belonged to Masonic lodges, including Diderot, Voltaire, Benjamin Franklin, Montesquieu, Newton and Rousseau, as well as the majority of the most significant French Revolutionary politicians. They were all drawn to Freemasonry's promotion of liberalism, resistance to royal supremacy, opposition to the Catholic Church and espousal of Enlightenment ideals. Indeed, the search for personal enlightenment was one of the major tenets of Freemasonry, which made it even more alluring to intellectuals during this period, who enthusiastically signed up - making Freemasonry the largest Enlightenment society with over 100,000 members in France alone by the beginning of the Revolution.

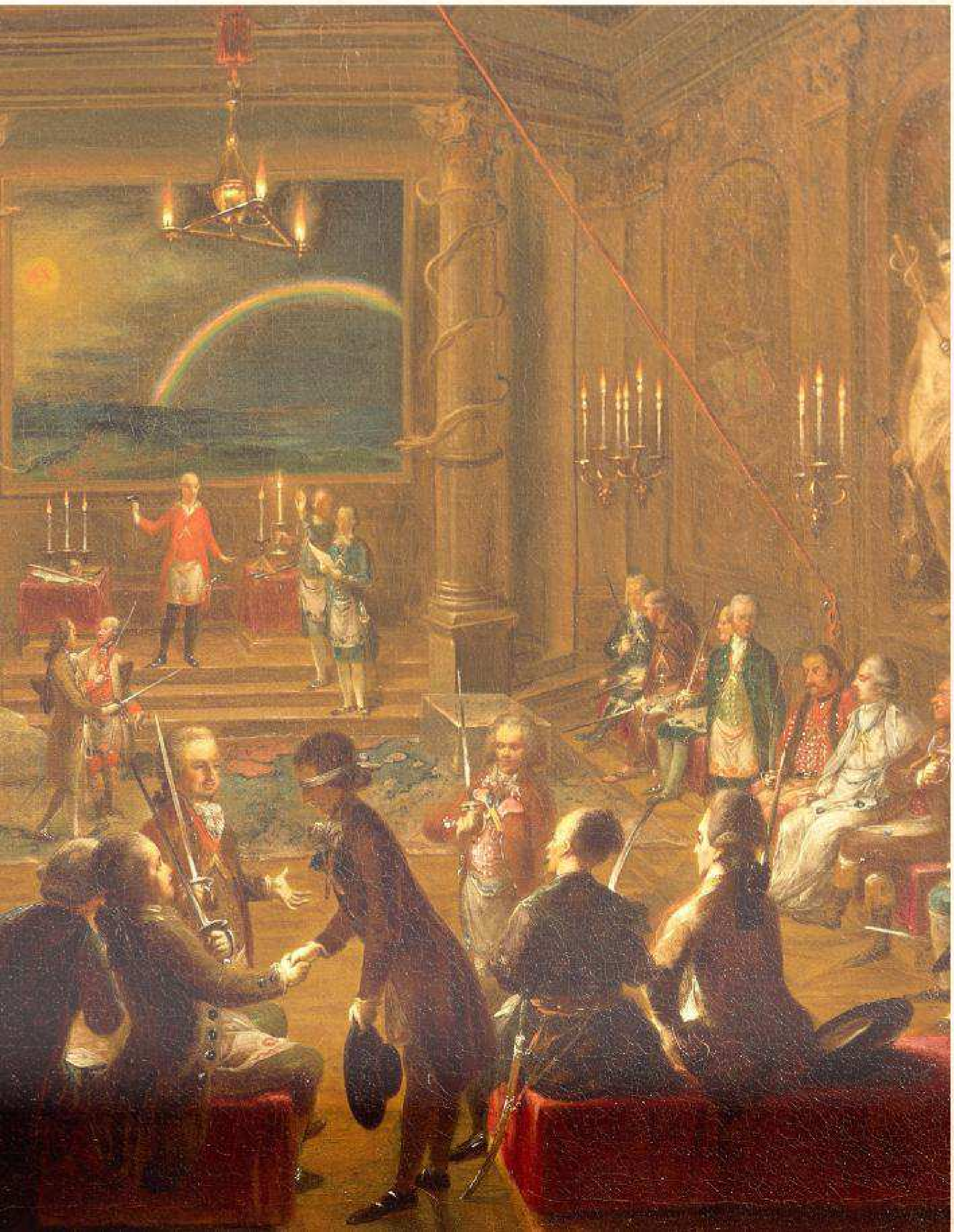
Ultimately, although the Enlightenment may have remained at its very heart a movement that was pushed forward by a small educated elite of male intellectuals, unlike other such periods it managed to be admirably and unusually egalitarian in nature. This was thanks to the serious efforts made by philosophers, academics, scientists and societies to promote the new ideas to all classes and make reading material and meetings accessible and open to everyone.

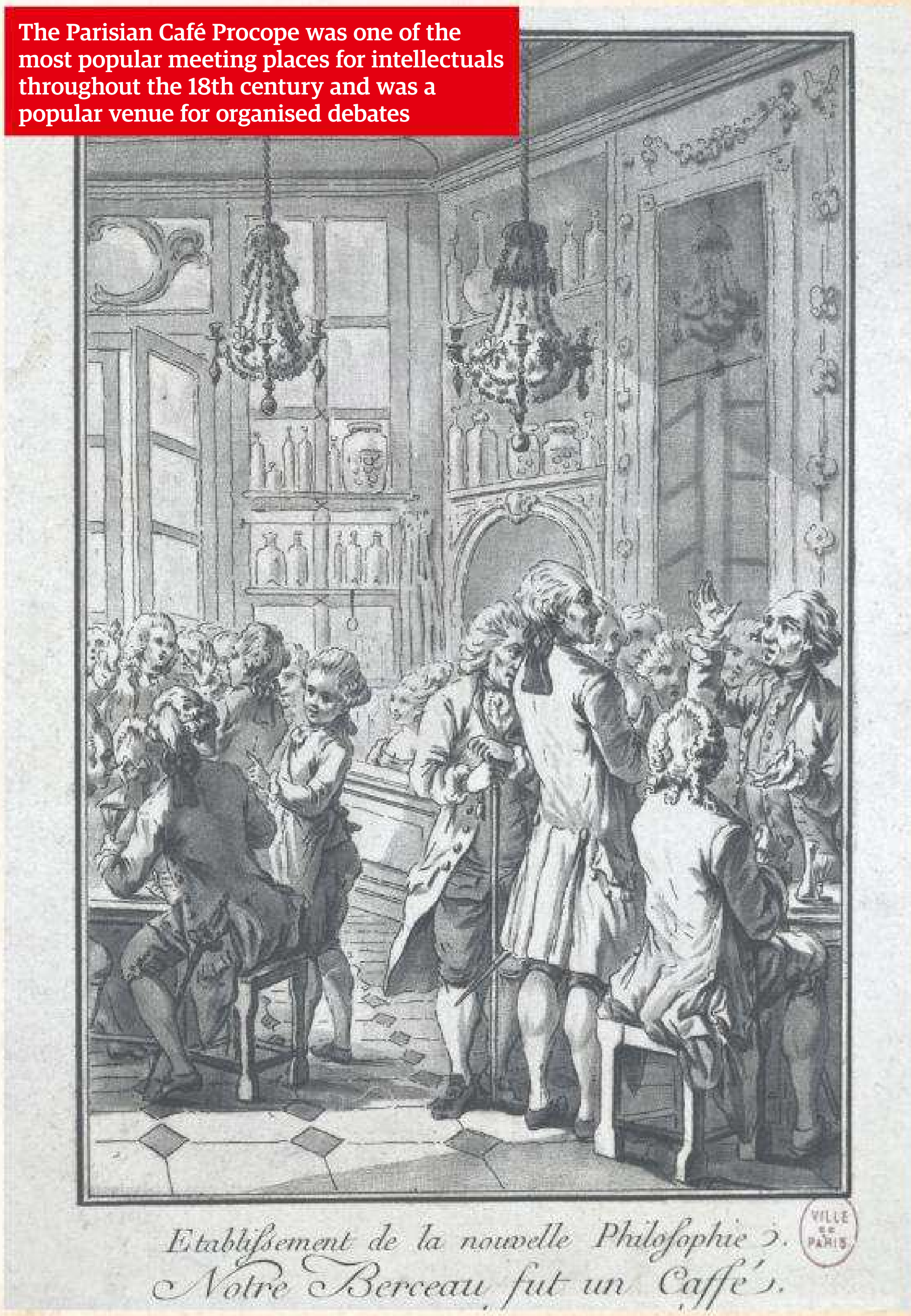
At the start of the 18th century, literacy levels were low and most ordinary households would have possessed few, if any, books, whereas by the end of the century literacy had doubled, especially among previously disenfranchised groups. It had become far more commonplace for working class people to own books, read pamphlets and take part in public debates, which would lay the groundwork for their enthusiasm for and active participation in the Revolution of 1789.



Women-only Freemasonry lodges were very popular in 18th century France with Marie Antoinette's favourite, the Princesse de Lamballe, being a particularly enthusiastic member

AN DE LA LOGE DES MOPSES
POUR LA RECEPTION DES FEMM





The Parisian Café Procope was one of the most popular meeting places for intellectuals throughout the 18th century and was a popular venue for organised debates

Etabliſsement de la nouvelle Philoſophie.
Notre Berceau fut un Caffé.

© Getty Images

A Woman's Place

The Age of Enlightenment was seen by women as a chance to carve out a new and exciting role in society. However, such freedoms were not easily won

Words by Joanna Elphick

Whether a daughter or a wife, a virtuous mother or a seductive whore, the status and powers of the female have always been unquestionably restrictive. Women belonged to men and, as a result, their roles were inextricably linked to the needs of their keepers. Daughters of the wealthy were dangled before the waiting bachelors, little more than well-dressed erotic carrots, chaste enough to ensure legitimate heirs to carry forward the family name but full of personal promise in the bedroom for their owners alone.

Once married off, the father could breathe a sigh of relief while the woman was expected to take up her new role, that of wife. Lower status women, meanwhile, were required to ensure there were enough offspring to support their husbands in the workplace and bring in more money.

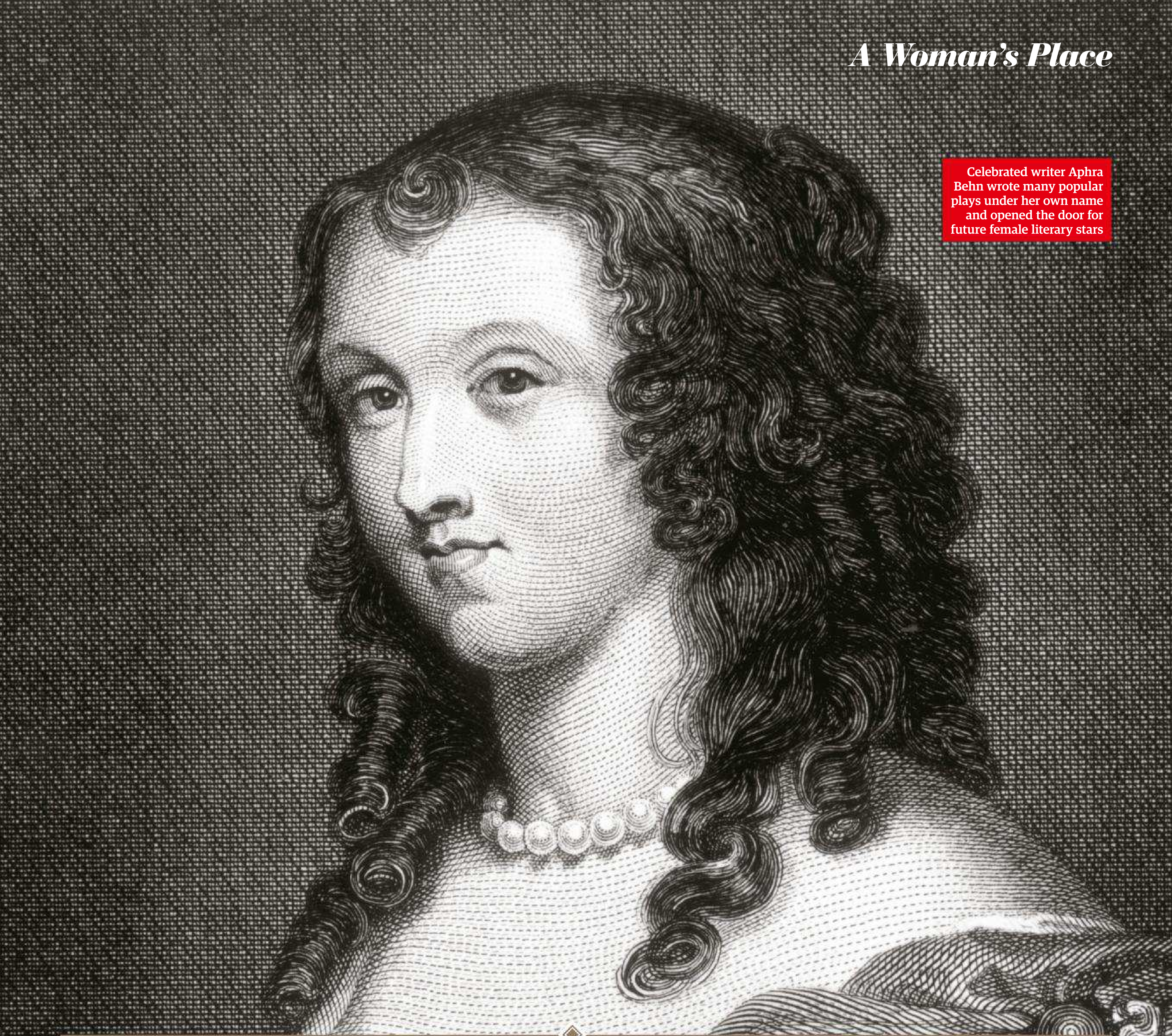
From Medieval times to the Renaissance, women were shackled to their preordained functions in society, but such domesticity was never going to be enough for them. The innate fear, born from a rickety religious structure and political unrest, that gripped the people during the Reformation led to a pathological hatred of any woman failing to 'tow the party line'.

As a result, the late 16th and early 17th centuries bore witness to a swathe of terrifying witch trials. Innocent women were persecuted for independent thought and a desire for a place outside of the obvious gender roles. For many men religion became a concept to question, while women were given reason to mistrust it. As the chaos of the Reformation calmed down, the Age of Enlightenment dawned, and with it a variety of hitherto unheard-of opportunities sprang up for the frustrated female community.

Men were, and always had been, central in each and every facet of the social structure. One influential 17th-century text summed up the situation perfectly, stating: "The lifelong duty of a woman is obedience." Power automatically fell to men in all aspects of society, from the economic through the political to the cultural and, on the surface at least, the Enlightenment seemed to bring no significant changes. However, subtle rumblings were afoot, albeit carefully hidden beneath a veil of domestic harmony, the one area a woman could flex a modicum of independence and free thought.

While the cultural and intellectual male movement rallied against religion and superstition in favour of science and reason, their wives and daughters opened up their homes in order to allow a safe haven for such radical thoughts. Here, behind the dignified walls of the intellectual's abode, females were free to come and go. After all, the domestic sphere was exactly where they belonged. No longer were such fascinating conversations taking place in the rarified confines of public political buildings where men ruled, but instead

> "After all, the domestic sphere was exactly where they belonged"



Celebrated writer Aphra Behn wrote many popular plays under her own name and opened the door for future female literary stars

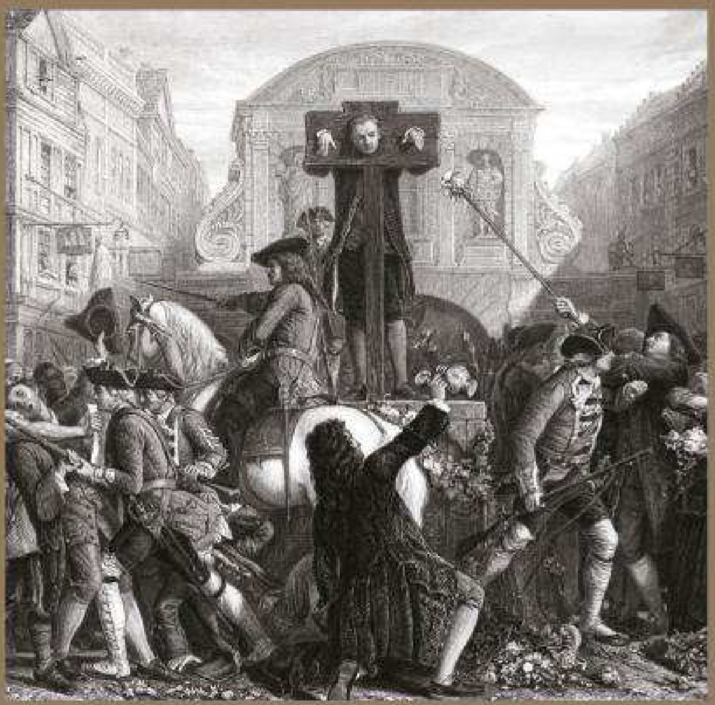
Daniel Defoe, the defiant supporter

The writer and adventurer is best remembered for his wondrous tales, but his support for women is often overlooked

During his life Defoe undertook many jobs, but throughout his various careers one thing remained constant. He was a perpetual crusader, fighting for the rights and freedoms of women.

Defoe had a great deal to say about the suppression of females, but since few men were interested in their wives' plight, he chose to highlight their situation in a series of witty letters, supposedly sent in by readers to the editor and printed in his own newspaper. Such controversial topics as the educational rights of women, their desire to hold property and thoughts on political matters were presented in his immensely popular section, 'Advice from the Scandalous Club'. As editor, Defoe would attempt to answer the problems in a humorous manner, intending to make the reader laugh while gently poking fun at the masculine ego. Such frivolity was used to soften the extremely serious and deeply controversial points that Defoe wished to make.

As a result, Defoe was adored by the female population. When he eventually found himself saddled with a ruinous fine and sent to the pillory, the women of London came out in droves to wash his wounds, feed him pies and ply him with wine. Others festooned the pillory with fresh flowers to ensure his punishment was sweet-smelling and as comfortable as possible.



The Blue Stockings Society

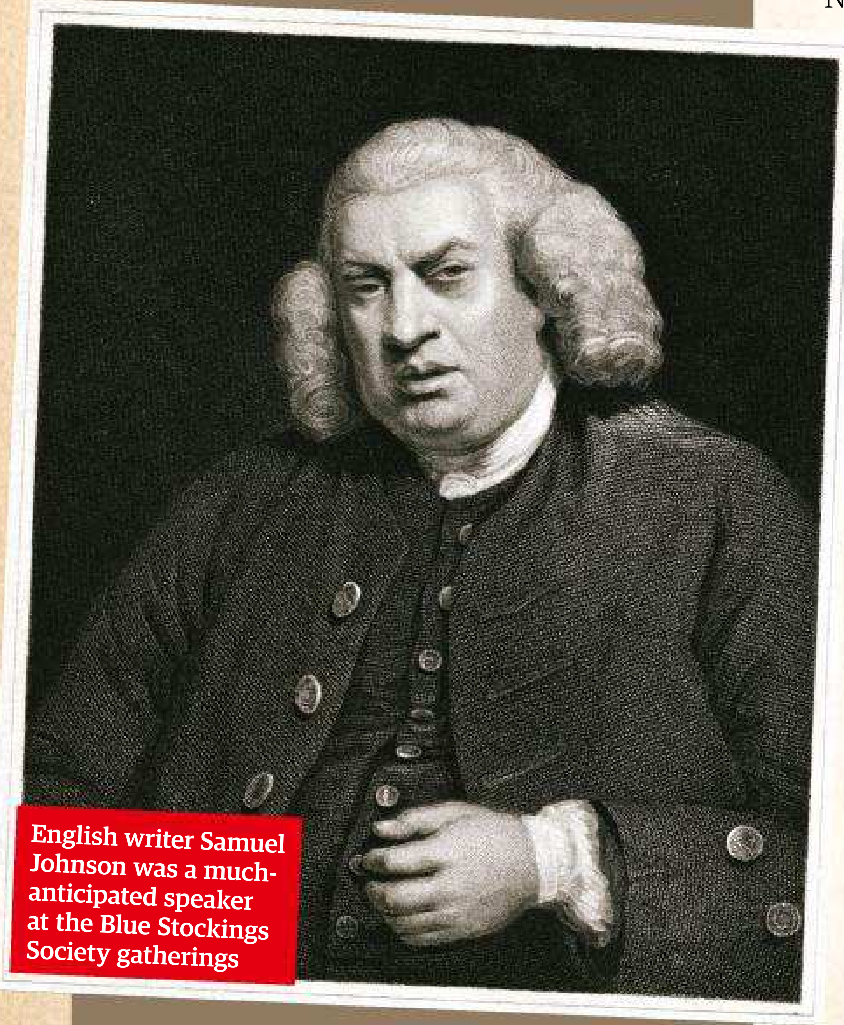
One group took a far more genteel stance over the improvement of women's education

Founded in the 1750s by Elizabeth Vesey and Elizabeth Montagu, the Blue Stockings Society was initially a women's literary discussion group that quickly developed into an informal intellectual gathering, designed to advance the education of women beyond that of needlework and social etiquette.

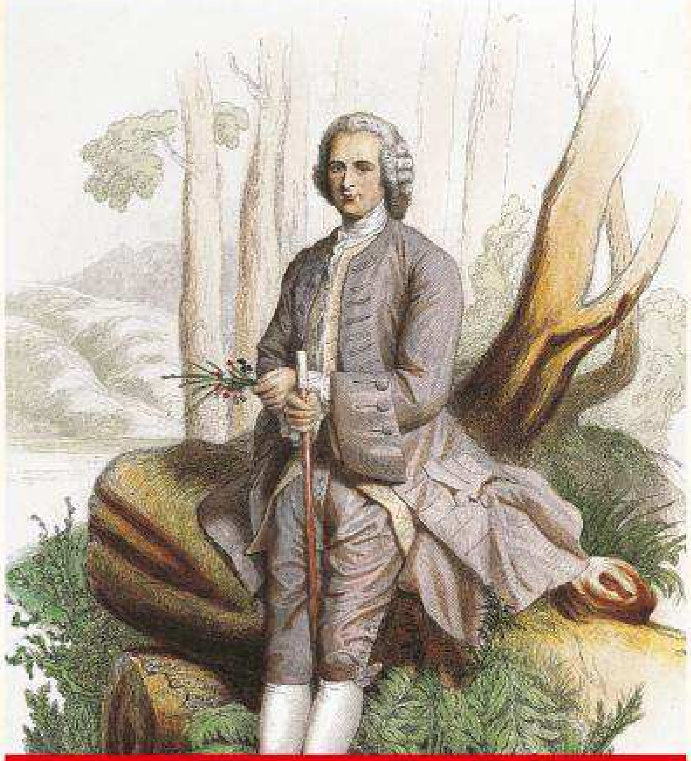
The Blue Stockings Society, so called to highlight the fact that these were informal get-togethers more interested in intelligent conversation than black-stocking fashion sense, avoided the controversial subjects of religion and politics, but encouraged such topics as the arts and literature in all its forms.

A few select gentlemen such as Samuel Johnson, David Garrick, Edmund Burke and were openly welcomed into the groups and encouraged to speak to the attentive women who were waiting upon them with drinks and light refreshments.

Unlike the salons, the Blue Stockings tended to come from the higher echelons of society and were not interested in fighting for the rights of women as a whole. Consequently, these elegant ladies were more popular with the majority of the male population and were rarely vilified in the same way as Mary Wollstonecraft and her proto-feminist supporters. While Wollstonecraft encroached upon the masculine world of politics, the Blue Stockings ladies stayed within the boundaries of social niceties.



English writer Samuel Johnson was a much-anticipated speaker at the Blue Stockings Society gatherings



Jean-Jacques Rousseau may have been commemorated in many beautiful statues and monuments, but his views on female capabilities would hold women back and undermine any move forward during the Age of Enlightenment

within the morning rooms and summer houses of the home. The salon culture had arrived, and it was to offer a world of educational possibilities for the women of the time.

The Parisian salons developed for some time, but truly took hold in the wake of the French Revolution. They quickly spread across the cities of Western Europe, from Germany and Italy to England and Ireland. Suddenly women could participate in intellectual discussions. The patriarchal hierarchy was not prevalent in such social settings and the women quickly moved beyond the role of mere hostess to avid debater.

No longer would these women be satisfied with a basic education of reading and writing. Yes, it was important to be able to run a household, but apparently they could undertake far more academic tasks and challenges when the chance arose. As the men spoke, the women listened, fluttering in the background with food and wine but taking in every word. Gradually, their role evolved, choosing both the guest list and the topics to be discussed. The feminine drawing rooms had become the classroom, siphoning a little of the intellectual stimulation away from the coffeehouses where such discussions had previously taken place but women were unwelcome.

Here in the salons, the social hierarchy was abandoned in favour of wit and intellect. Nobles rubbed shoulders with the bourgeoisie, chipping away at the social barriers that were prevalent elsewhere, and the sexes bantered freely. Whether the males initially believed their women could keep up intellectually is debatable. No doubt many men thought that this was nothing more than a lighthearted hobby, but for some, flinging open the morning room doors was a startling career move.

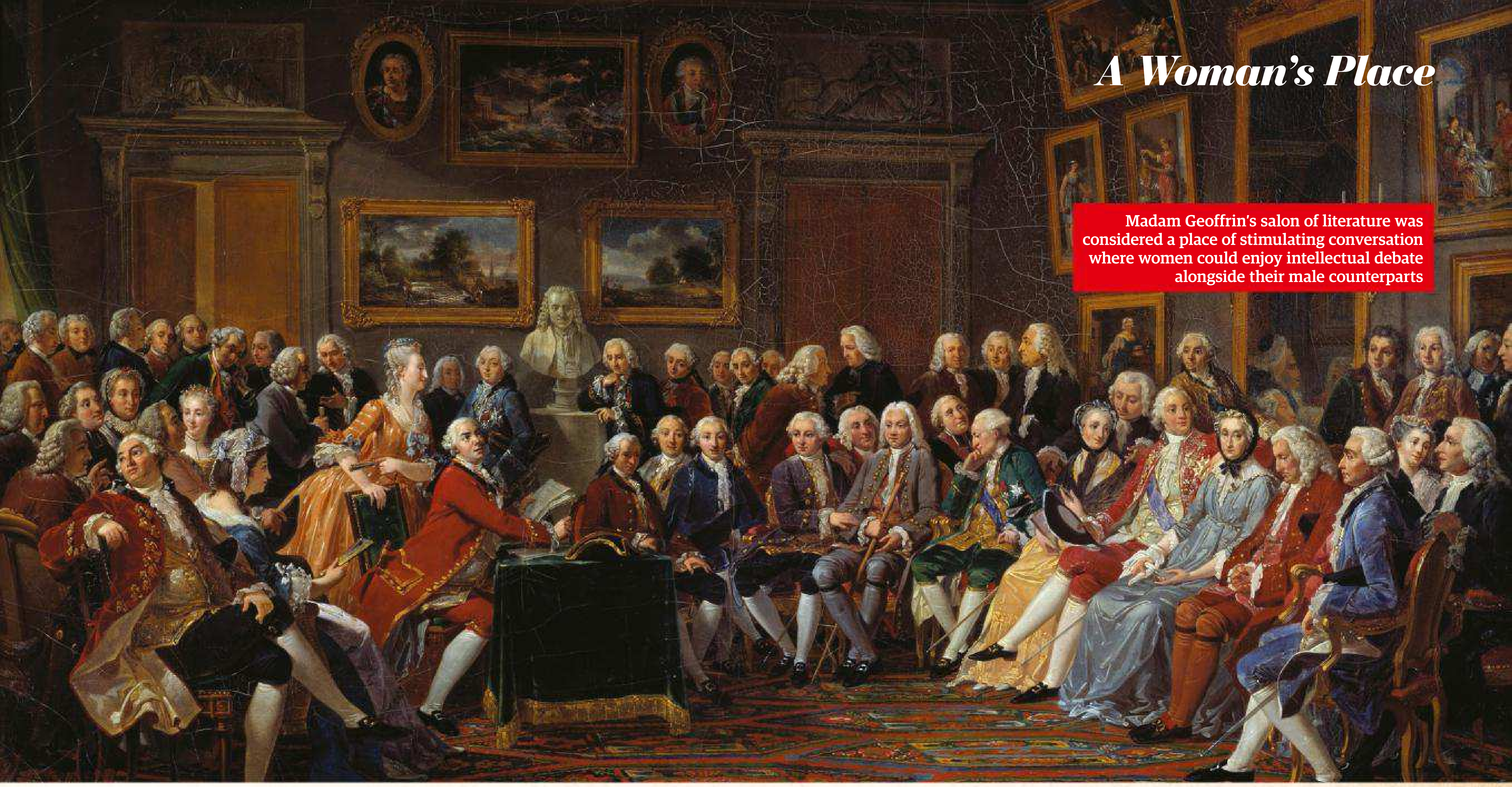
The salon of Madame Geoffrin was said to be "one of the wonders of the social world" and yet, orphaned at a young age, this woman lacked both social status and delicate features, characteristics of great importance to the men of the time. Geoffrin changed the face of the salon, moving the time from short, late-night supper events to one o'clock so the fascinating debates could continue throughout the afternoon without impacting upon those who had to get up early the following day. A weekly schedule was set up so that like-minded souls could converse freely. Monday nights were best suited to the artists while Wednesdays tended to draw in those of a literary persuasion.

Madame Staël, meanwhile, grew up in a world of privilege and beauty. Her salon was considered to be "the most brilliant in Paris… at the height of its vogue". Her social standing meant that she was unphased by the dignitaries that crossed her threshold, and during her time running a salon she became a notable stateswoman.

During the Enlightenment, new and exciting literary forms were being explored, particularly by women who could incorporate writing into their domestic sphere. Female authors started to emerge, some choosing to publish academic articles based on their conversations within the salons, while others created novels, poetry and plays. One such playwright, Aphra Behn, commonly considered to be the first professional female author, paved the way for a succession of popular writers.

Some chose works of nonfiction dealing with topics that had been kept far out of the reach of women until this point. Although the rise of scientific enquiry and reason had been claimed by men, brilliant female brains were initially supporting, but later discovering for themselves, wildly thrilling theories, pushing the boundaries of science in new directions. Émilie du Châtelet used her considerable mathematical skills and understanding of physics to support Newton's theory of gravity. Gottfried Leibniz claimed to have beaten Newton in the discovery of calculus but was happy to concede that he had been heavily influenced by early female scientist Anne Conway. Meanwhile, entomologist and artist Maria Sybylla Merian had no less than two beetles, nine butterflies and six plants named after her. Her savvy business acumen ensured that her passion for insects also made her money through the discovery of a cheap alternative to the use of silkworms. Having abandoned her husband, she created an all-female business, travelled the world and topped up her finances by selling exotic creatures preserved in brandy.

Naturally women were no longer prepared to accept that their "cold, wet brains" were incapable of independent thought and reason. Mary Wollstonecraft began to fight for the education of women and, although she accepted men and women were fundamentally different, they were still human beings and therefore deserving of



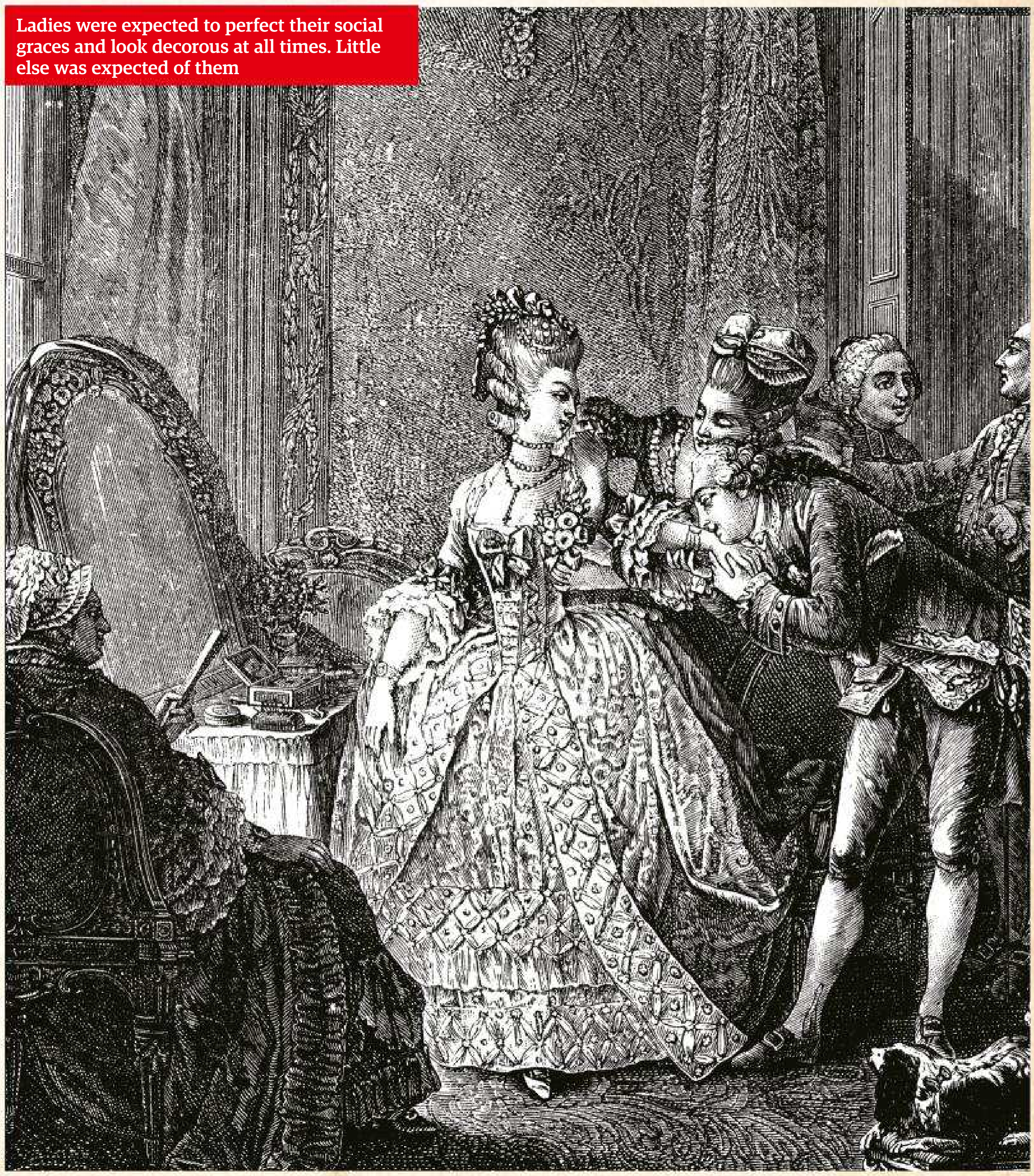
Madam Geoffrin's salon of literature was considered a place of stimulating conversation where women could enjoy intellectual debate alongside their male counterparts

natural rights. This included the right to educate oneself and explore capabilities of rational thought. She was not alone in her beliefs.

French writer Denis Diderot championed the rights of women claiming, "We have so severely neglected the education of women among all the refined peoples, that it is surprising that we can identify so many whose erudition and written works have made them renowned." Margaret Cavendish used her literary skills to rally against all female restrictions, supporting Wollstonecraft and many other proto-feminists but, in reality, although it paved the way for future changes, it did very little for the women at that time.

The Age of Enlightenment was a double-edged sword for womankind. It showed them in glorious detail the wonders of learning, filling their heads with passionate thoughts but at the same time many freedoms were reduced. Men such as Jean-Jacques Rousseau ridiculed the educational aspirations of women, claiming that it was a frivolous waste of time. Females were domestic creatures and should stay in their own sphere and sadly, many men agreed with him. The mere thought that a woman could do anything as well as a man was utterly unthinkable, and the potentially vulnerable position they had allowed themselves to get into was quickly rectified. Educational opportunities were returned to music and the delicate arts of still life and needlework. Property rights were drastically reduced and any hope of political involvement was cut short.

Women would continue to write and fight, but behind closed doors. Great works were produced but published under male pseudonyms. The Enlightenment shone brightly for women all over the Western world, allowing a tantalising glimpse of what could and should have been. Sadly, it did not last, and such an opportunity would not return for some considerable time.



Ladies were expected to perfect their social graces and look decorous at all times. Little else was expected of them

Enlightening the Arts

When the Enlightenment came to literature, art and architecture, it left a lasting legacy for the generations

Words by Catherine Curzon

The Age of Enlightenment changed the intellectual face of continental Europe. Encompassing philosophy, the arts and politics, it arguably shaped the way the long 18th century is viewed to this day. The names of Enlightenment philosophers are still celebrated, and artists, writers and architects who flourished in the era have become recognised as some of the finest of their day. These are the innovators who left their mark on canvas and paper, not to mention carved in stone and marble, to endure into the 21st century.

The Enlightenment was an era in which individual liberty and reason were valued above absolutism and religious dogma. It placed an emphasis on science rationality and became indelibly associated with the Latin motto 'sap ere aude', or dare to know, emphasising the importance of the individual learning and knowledge.

In the world of art, the Age of Enlightenment came at a time when fashion was embracing the Rococo, which began in the reign of Louis XV. This French style, which emerged from the Baroque period, celebrated opulence and splendour and encouraged ornamental extravagance above all things. Yet for those who embraced the Enlightenment, the Rococo was a symbol of everything they opposed, its artistic depictions filled with lavishly dressed aristocrats engaging in decadent, immoral fun. Enlightenment artists rejected these apparently frivolous subjects and harked back to the ancient era in their search for a more pure form of artistic expression.

If an artist truly hoped to be able to depict the simple wonders of nature and the beauty therein, they argued, then it must be done without unnecessary embellishment. As far as early Enlightenment artists were concerned, the ideal they hoped to re-create could be found only in the worlds of the classical era. In Greek statuary they saw artistic perfection, an idealised figure of the hero, physically perfect and embodying all the ideals of proportion and order. In classical sculpture and illustration there was no dissonance or decadence, only a harmony of shape and form, light and shade, that created art from an almost scientific balance of elements.

Yet art cannot flourish from mere imitation, so as the Enlightenment gathered speed, so too did art evolve. Rather than slavishly re-create the work of the ancient era, there was an increased focus on a more natural approach. The most popular landscapes showcased a naturalistic depiction of the world, allowing artists to create not idealised scenes, but true elements of nature. This response to the decadence of the Rococo era suggested

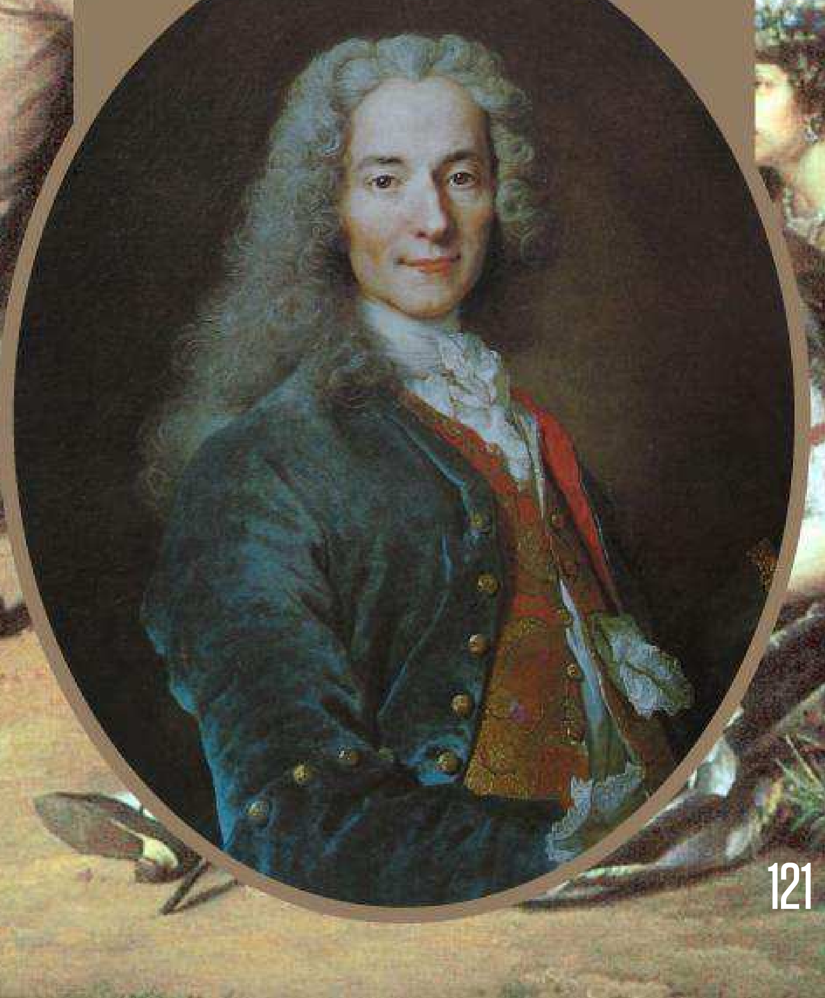
> "Yet art cannot flourish from mere imitation, so as the Enlightenment gathered speed, so too did art evolve"

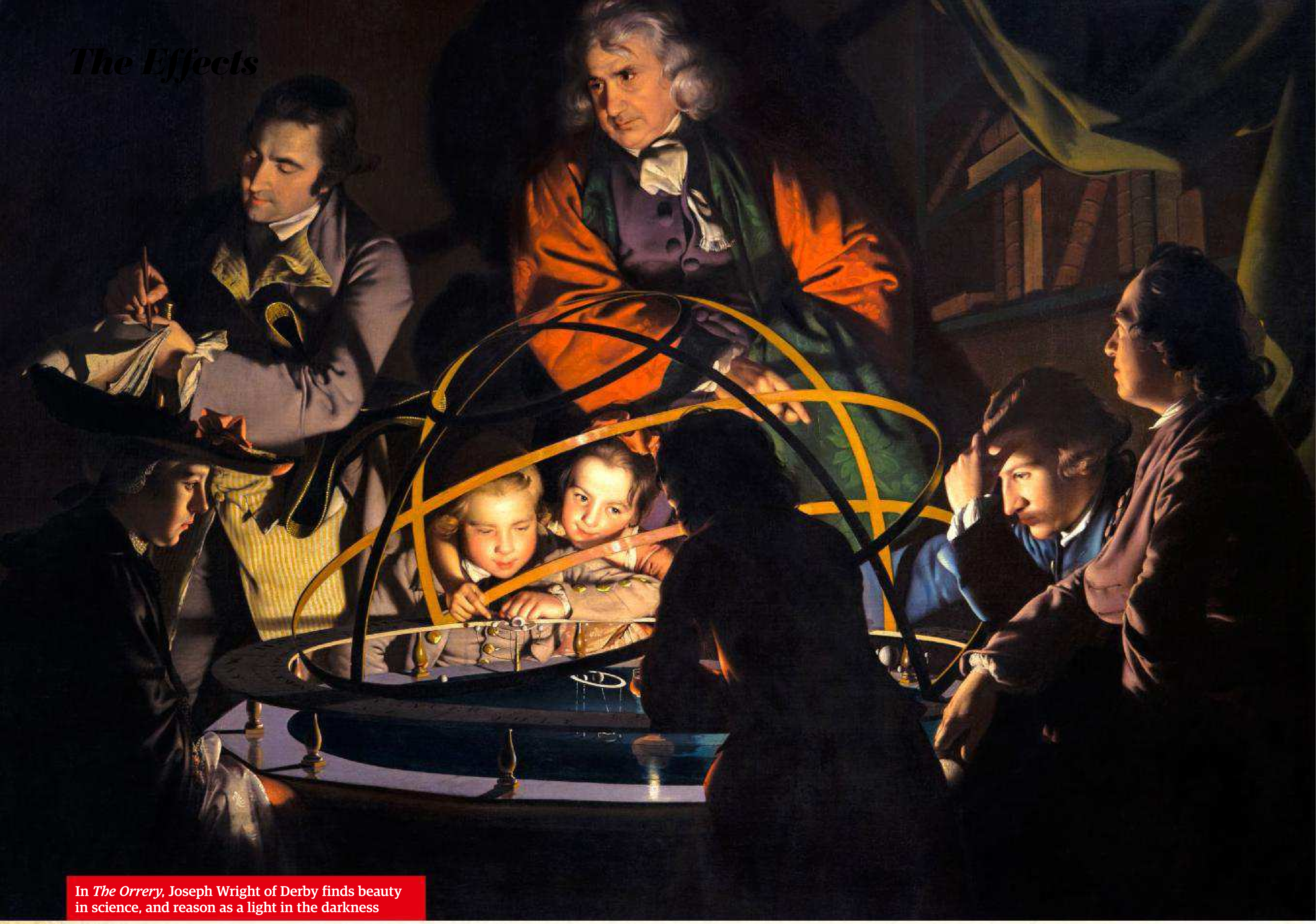
Micromégas

The Age of Enlightenment didn't only look to the past, but to the stars

First published in 1752, Voltaire's *Micromégas* is one of the most remarkable science fiction works of all time and follows its titular hero, a 120,000-foot-tall native of the Sirius system, as he travels through the galaxy in the company of a friend from Saturn. When the two arrive on Earth they find the humans they encounter dull and unambitious, so intent on pursuing their mundane passions that they miss the wonders of the universe they are a part of.

Voltaire's satirical work wasn't concerned with ancient myth and religion, but with the possibility of life on other planets. The character of Micromégas was inspired by Newton and finds himself banished from his planet for undertaking scientific experiments that challenge accepted dogma. On Earth he is heartened to discover philosophers among the self-important dullards and it is to them that he imparts the message of the Enlightenment, granting them a book that contains the secret of the universe. Inside, however, they find nothing but blank pages. Micromégas wants the philosophers to realise that there is no great cosmic being out there who will teach them the meaning of life. They must learn it by themselves.





In *The Orrery*, Joseph Wright of Derby finds beauty in science, and reason as a light in the darkness

> "Drawing inspiration from the clean lines and uncluttered art of the classics, artists undertook their own version of the Grand Tour"

that simple, pure pleasures could be found in the natural world if one would just take the time to look for them.

Drawing inspiration from the clean lines and uncluttered art of the classics, artists undertook their own version of the Grand Tour, travelling to Greece and Italy to examine classical works and learn the methods that had been employed by their creators. Here, all was order and unity, with an almost scientific process going into composition and creation that echoed the emphasis on rationality espoused by Enlightenment philosophers. As the years moved on, Enlightenment art turned towards the urban environment too, seeking the beauty and wonder not in frippery, but in industry and science.

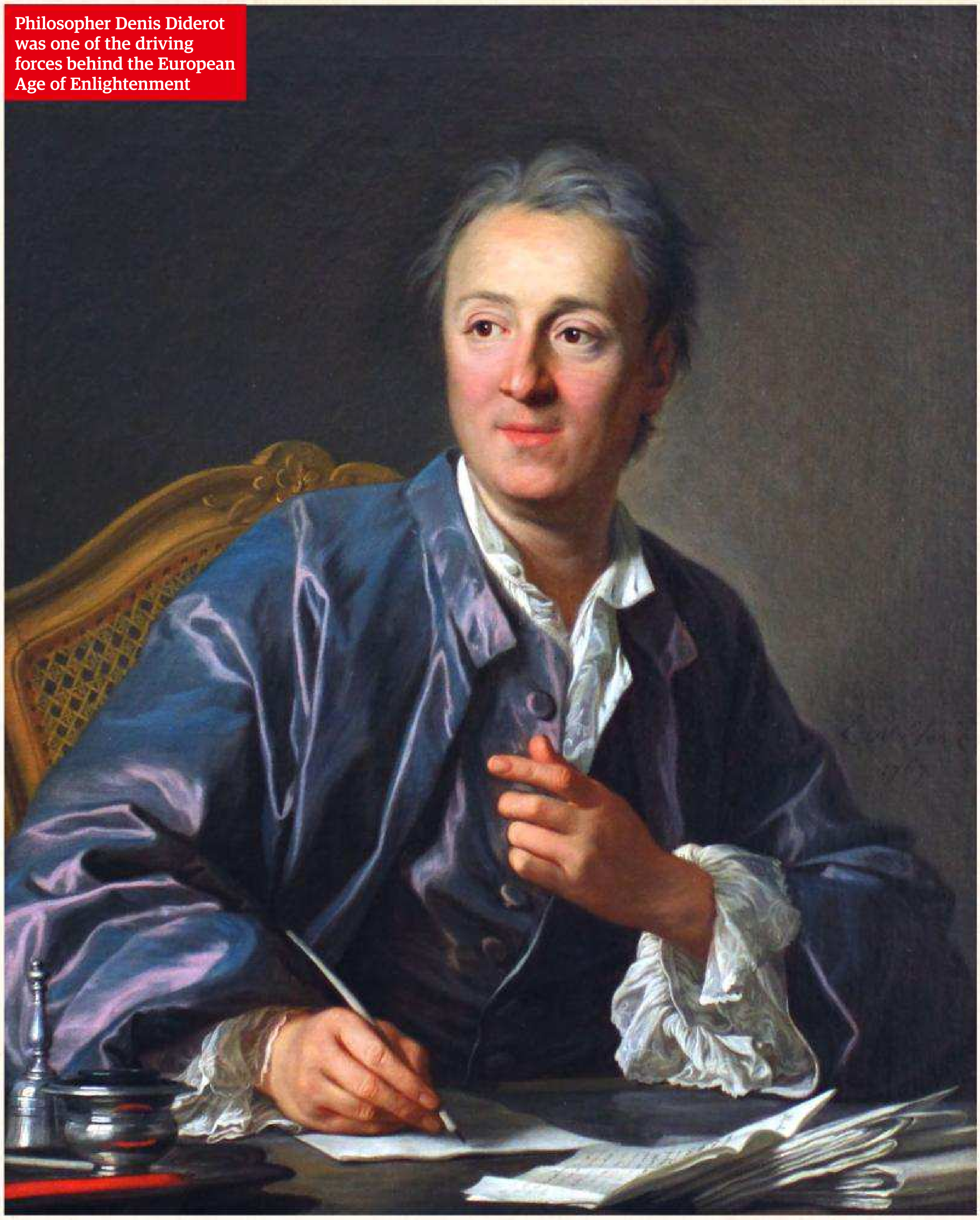
Nowhere was this more obvious than in the work of Joseph Wright of Derby, whose paintings captured scientific experiments and the wonders not of aristocratic romance, but science. In France, meanwhile, the very land where the Rococo was born and nurtured, attention turned away from the rich and fabulous at Versailles and onto the day-to-day life of the man and woman in the street. Suddenly a class that had never really been the focus of art found itself under the spotlight as painters, such as Chardin, depicted the daily lives of the working classes, undertaking such everyday chores as preparing supper or doing housework, labours that would never grace a Rococo canvas.

England's William Hogarth produced similar works and painted street vendors or even their own household servants. These paintings celebrated the supposed purity of the working-class life, in which an honest day's work replaced decadent lounging. This, argued the Enlightenment thinkers, put the poor above the rich if not on the earthly plane, then in the higher sense.

Enlightenment art didn't only embrace the working classes, though, but the middle classes too. Where once painters had celebrated the decadence of the aristocrat, bringing a fresh joy and humour to the Baroque, Enlightenment artists celebrated the rational, hard-working middle classes over the pleasure-hungry nobles. The dichotomy between the Rococo and the Enlightenment is obvious if one considers the work of a painter like Fragonard, who filled his works with silk-clad ladies and lusty men as contemporaries such as Greuze conveyed moral messages through deceptively simple domestic tableaux. Though some celebrated this shift in focus and style, critics of the Enlightenment argued that this focus of equality regardless of class is precisely what led to the French Revolution, the beginning of the end for the Enlightenment.

As art reflected Enlightenment beliefs in painting, illustration and sculpture, literature moved to do the same on paper. The work that perhaps most embodies the Age of the Enlightenment is Diderot's *Encyclopédie, ou Dictionnaire Raisonne des Sciences, des Arts et des Metiers*, (*Encyclopédia, or an Analytical Dictionary of the Sciences, Arts and Trades*), a 28-volume work that was published in France between 1751 and 1772.

Diderot's aim was to create the most comprehensive collection of knowledge that the world had ever seen and in doing so, make humankind not only more learned, but more virtuous by the simple act of categorising and



Philosopher Denis Diderot was one of the driving forces behind the European Age of Enlightenment

understanding without emotion or embellishment. Diderot's encyclopedia was supposedly aimed at readers from across the social strata, for anyone who might wish to improve themselves via learning. Even the style of writing utilised by Enlightenment authors was a counterpoint to those who had come before, employing an even, factual and detached tone throughout. Once again, logic and method were prized far above elaborate demonstrations of emotion.

Enlightenment thinkers in France termed themselves 'philosophes' and that description soon spread to intellectuals around the world. They regarded themselves not as social classes divided by nationality but as equal citizens of one planet, united by a love of learning.

Although the Enlightenment found its most passionate supporters in France, across Europe intellectuals flocked to join the movement. In England Edmund Burke took Enlightenment theory to its natural conclusion and wrote *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and the Beautiful*, in which he attempted to identify not only what constituted beauty in art, but to categorise the response of the viewer to these differing types of beauty. It was an audacious effort to turn an emotional response into rational thought, and to seek an explanation for impulse.

Just as artists had looked to classical works for their inspiration in the early years of the Enlightenment, so too did authors follow suit. The dawn of Enlightenment literature came with the so-called Augustan period, which sought inspiration from the age of Augustus, taking as its guide the works of such names as Virgil and Horace. Once again, the keywords were order and logic, with reason and debate the central focus of the author. Scientific journals flourished, and the sharing of information became a cornerstone of the movement as debating societies became hubs for followers of the Enlightenment to gather.

Yet the rarified nature of ancient Greek and Latin texts meant that this wasn't a world in which the working class and poor, so lauded by artists and

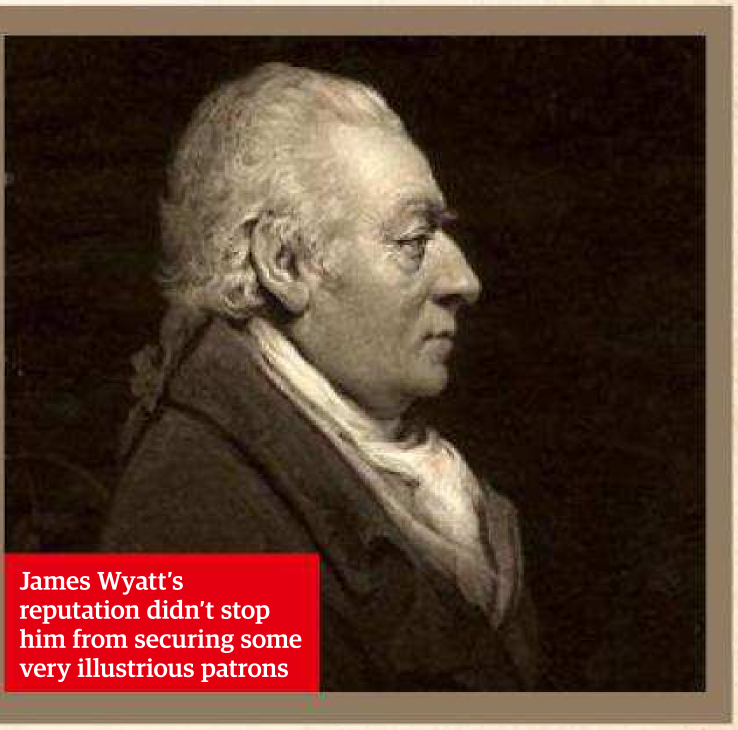
James Wyatt

Known as 'the Destroyer', George III's favourite architect achieved stardom despite some catastrophic mistakes

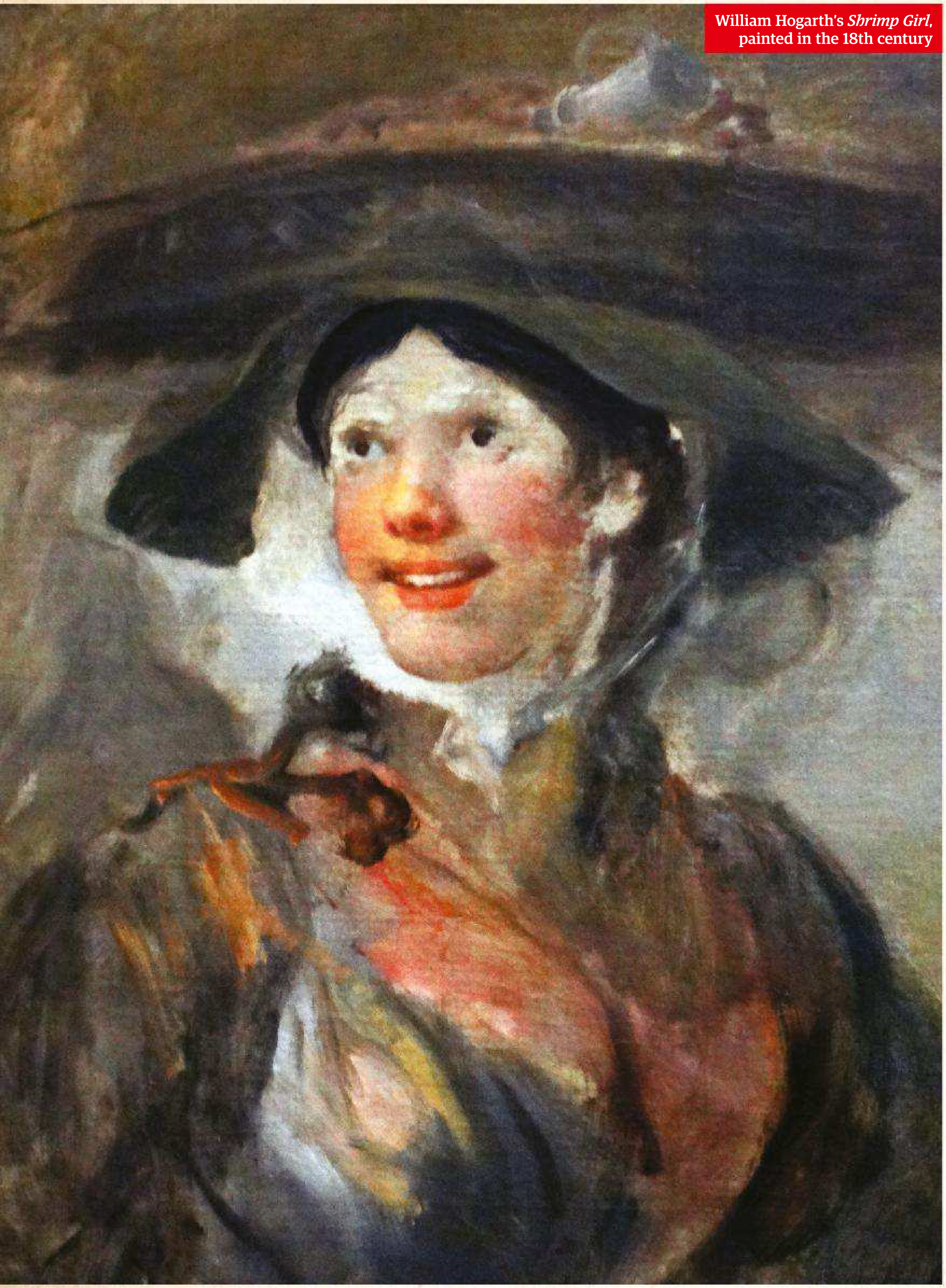
James Wyatt, 'the Destroyer', was one of Robert Adam's greatest architectural rivals but his buildings hardly embodied the Enlightenment of ideal of form and function. He earned his unenviable nickname from historians who have lamented his enthusiastic "restorations" of the cathedrals of Durham, Hereford and Salisbury, which often owed more to a Gothic ideal than the reality of the buildings when they were first erected. A tireless designer, he drafted buildings, furniture and everything down to the smallest item of crockery, pioneering the use of industrial technologies to manufacture the fixtures and fittings of his grand houses.

Wyatt rarely turned down a commission and as a result his projects usually fell badly behind schedule. Not only that, but he was responsible for the monumental tower at Fonthill Abbey, which collapsed under its own weight in 1807. Amazingly, none of this damaged his cache.

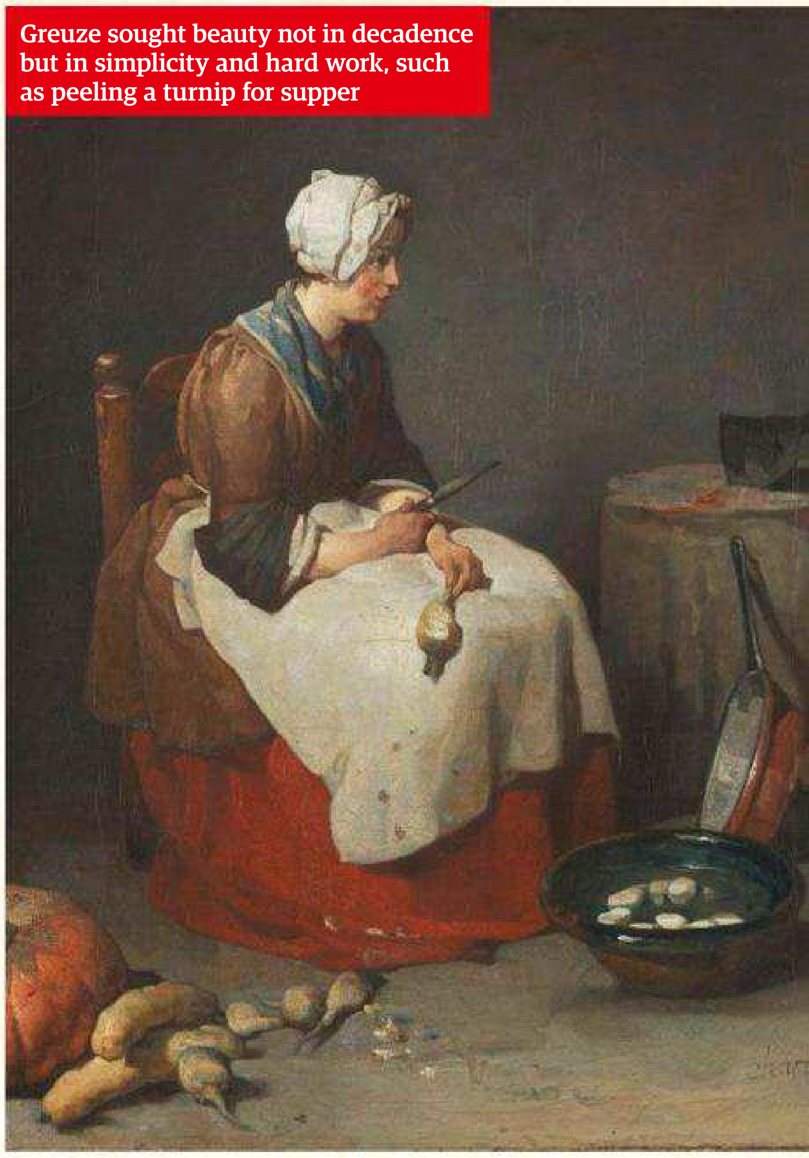
Though some found his work austere and charmless, by the time Wyatt died in 1813 he counted George III and European royalty among his greatest champions. Nevertheless, Wyatt was insolvent when he died and his wife was thrown into debtor's prison. Despite this, he was buried in Westminster Abbey in fine style, lauded as one of the greats of his age.



James Wyatt's reputation didn't stop him from securing some very illustrious patrons



William Hogarth's *Shrimp Girl*, painted in the 18th century



Greuze sought beauty not in decadence but in simplicity and hard work, such as peeling a turnip for supper

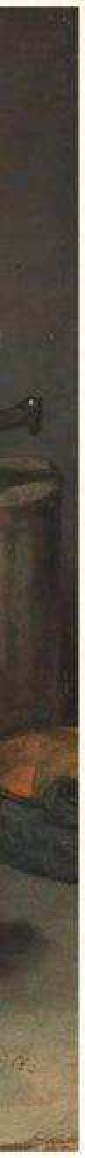
philosophers, could tread. Though such figures as Samuel Johnson aimed to categorise and define language, ultimately the Enlightenment desire to educate rarely penetrated the working classes or the poorest in society.

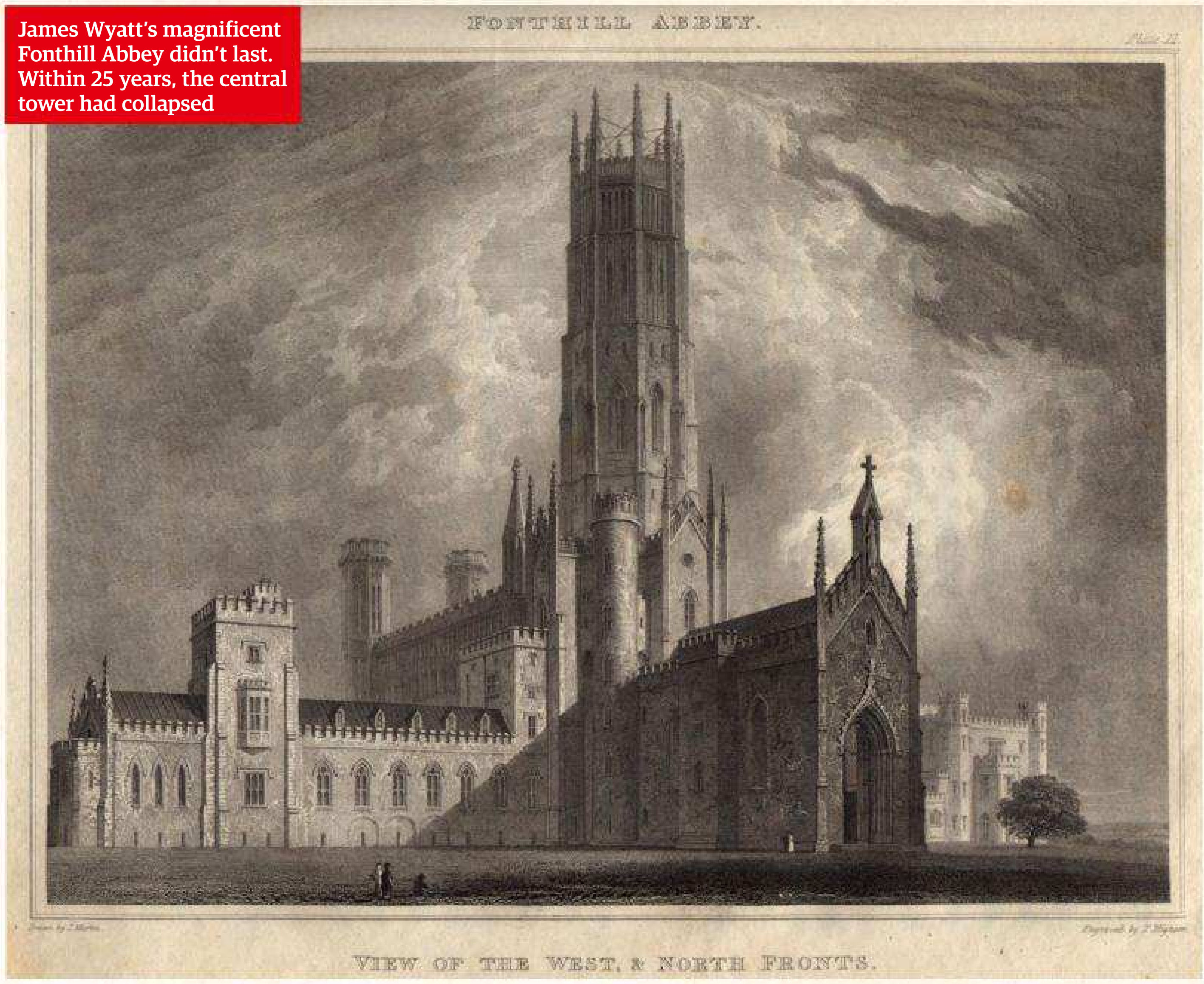
The Age of Enlightenment soon left the Augustan thinkers behind too in its search for something more in tune with the man in the street and an experience not of ancient Rome, but of modern Europe. Jonathan Swift is one of the most famous authors of the era and his works are shot through with a vein of satirical genius. In his most famous work, *Gulliver's Travels*, the eponymous hero meets the overbearing and self-interested Yahoos, contrasting them sharply with the noble Houyhnhnms, who judge everything on reason. While Swift gained enormous popularity by couching his criticisms in slyly humorous allegories, others, including the waspish Alexander Pope, were not so delicate in their approach.

Grand emotions and purple prose found themselves replaced by a gritty realism and earthy stories that embodied the new focus on down-to-earth fiction. The likes of Daniel Defoe and Henry Fielding told stories not of legend and monarchs, but of sailors and the sort of person more likely found at a local coffeehouse than at Versailles. They peppered their works with moral lessons too, reflecting the idea that the reader might discover the answers to their personal dilemmas not in the pulpit, but in the simple of act of living their life.

Classicism, which had been at the basis of early Enlightenment art and literature, was perhaps nowhere more prevalent than in architecture. The balance and clean lines of Greece and Rome soon began to appear in London and Paris, and the Classical designs popularised by the 16th-century architect Andreas Palladio became the height of fashion. Palladio took his inspiration from the Roman architect Vitruvius, and Palladian architecture was popularised through Europe by the likes of Inigo Jones, who counted monarchs and the ruling classes among his clients. The Neoclassical influence was central to Enlightenment architecture, in which a geometric focus on reason and form came to the fore.

Though their designs were based on mathematical precision, such celebrated architects as Robert Adam combined simple columns and domes into beautiful structures, drawing harmony from geometry. Symmetry and proportion were at the heart of the movement, with designs chosen not just because they looked good, but because they were structurally totally sound. These




FONTHILL ABBEY.
VIEW OF THE WEST, & NORTH FRONTS.

James Wyatt's magnificent Fonthill Abbey didn't last. Within 25 years, the central tower had collapsed

> "In the hands of an Enlightenment architect, rational systems of thought such as mathematics and geometry became a thing of beauty"

were not buildings built solely for beauty - they were structures in which engineering and logic combined to create a perfect balance of form and appearance. In the hands of an Enlightenment architect, rational systems of thought such as mathematics and geometry became a thing of beauty when applied to stone and marble.

One of the best examples of this is the British Museum, which opened in 1759. This was an Enlightenment building designed to hold Enlightenment materials, providing access to all branches of knowledge for anyone who might wish to experience them. Its exterior harked back to ancient Greece while inside was a temple to science and rationality. It was the ultimate expression of form and function, with building and contents in perfect harmony.

Yet the Age of Enlightenment, like those ages that preceded it, did not last forever. Nor was it the all-inclusive land of plenty that its supporters hoped. Universal learning might be great in theory, but in practice those who were celebrated by artists lived lives not just of honest toil, but of grinding labour. There was no way Hogarth's shrimp girl could spend the day in the British Museum.

Industry, so idealised at the dawn of the Enlightenment, became a blunt fist that controlled the lives of workers and began to flourish as capitalism emerged. The 18th-century ideal of a rational world in which hard work and clear thought could prevail was beginning to shift. Not everybody was a middle-class gentleman and Enlightenment theories of liberty were all well and good, but when working from dawn to dusk to feed a family, there was little time for self-improvement, let alone to pose for a painting.

Counter-Enlightenment philosophers and artists rejected the Enlightenment as a movement that dismissed myth and faith and turned its back on the traditional structures that kept society on an even keel. World-changing events like the French Revolution were used as evidence not of the triumph of reason and democracy, but of a world in which morality had been forgotten in the pursuit of reason. Yet today the Age of Enlightenment persists in the greatest examples of literature, art and architecture. Though the era might have passed, it remains subtly present all over Europe, and in the memories of some of the long 18th century's greatest achievements.

◆

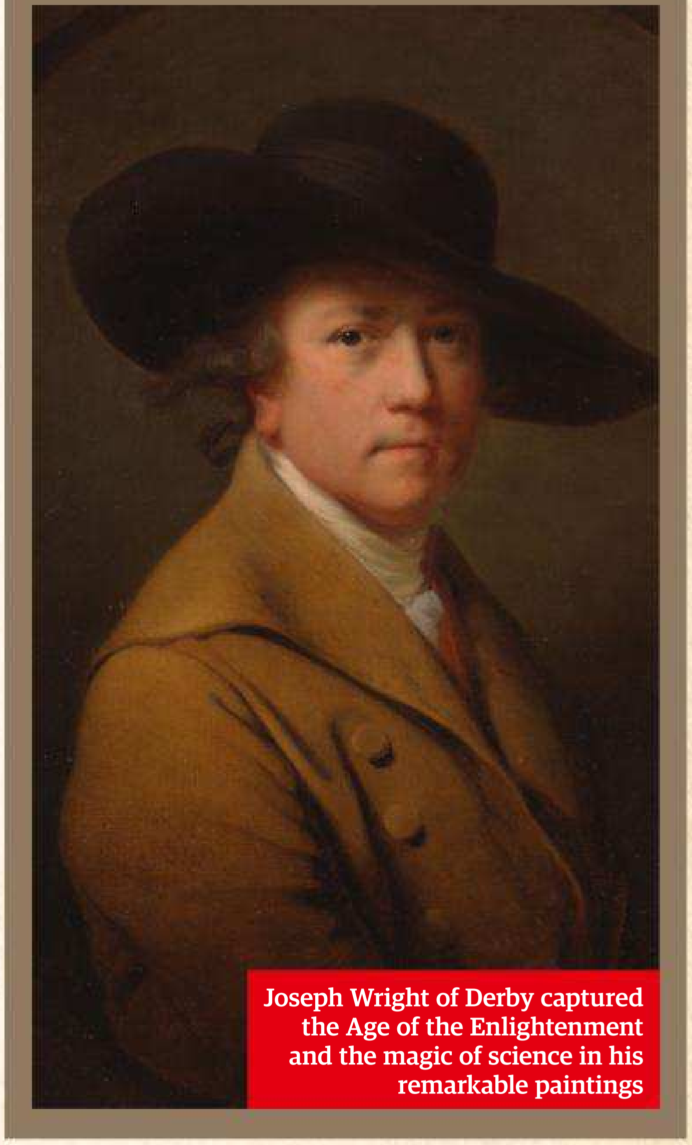
Joseph Wright of Derby

Joseph Wright of Derby made his name by painting the Enlightenment in a celebration of industry

Joseph Wright of Derby was a founder member of the Lunar Society, a group of industrialists and scientists who lived in the Midlands. They argued for a world in which science and industry was pursued over religion for the benefit of mankind.

Wright's paintings were not the Rococo scenes of flouncy romance and aristocratic fun that had been so popular throughout the 18th century. Instead he depicted scientific experiments and philosophical lectures in which wonders could be experienced not in scenes of opulent decadence or religious tableaux, but in the beauty of scientific experimentation. Wright also painted scenes illustrating industry, finding artistic inspiration in subjects as far removed from romantic Rococo romps as could be.

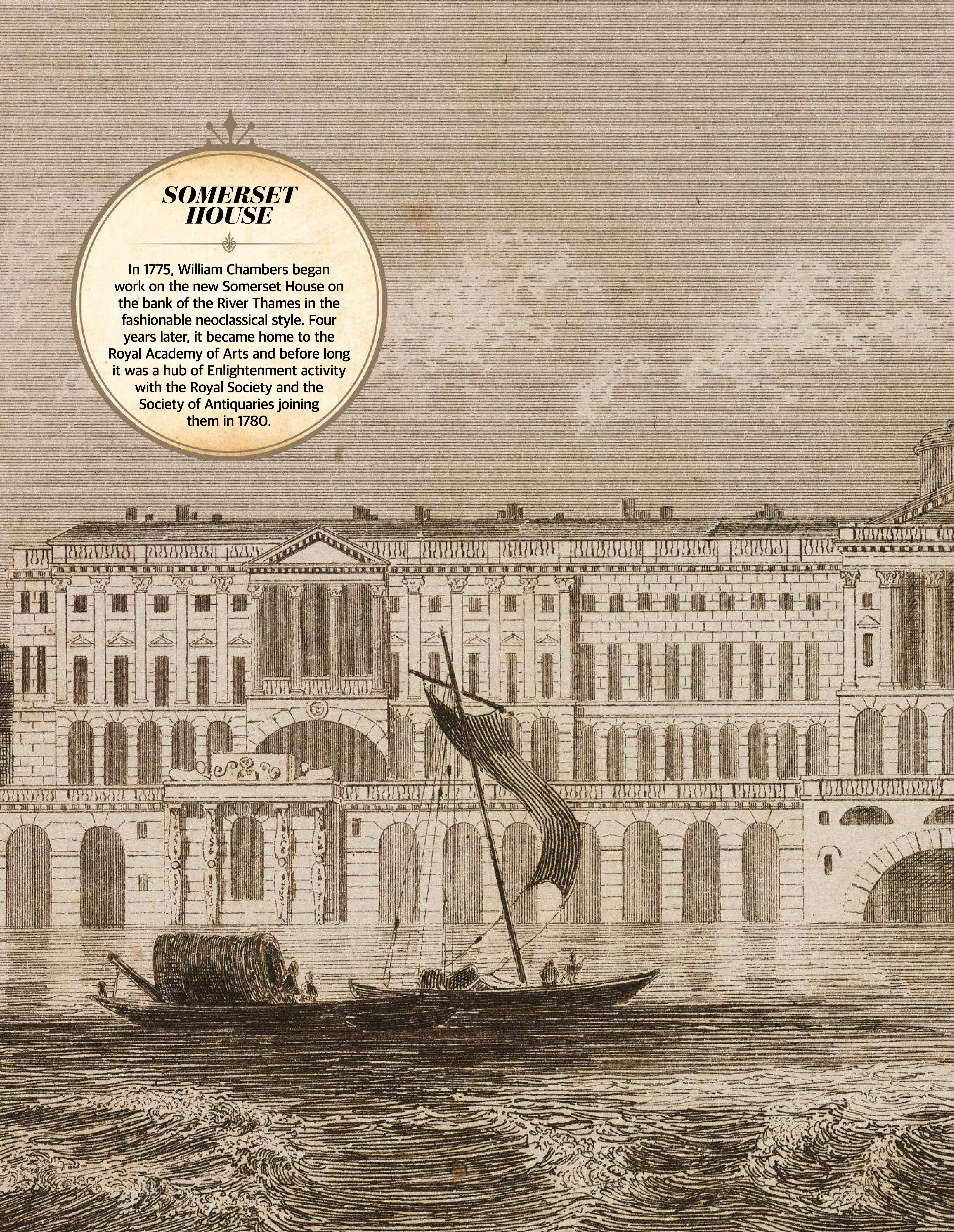
Candlelight is often the only source of light in Wright's works, which depict experiments taking place in semi-darkness before an entranced audience. This offers a rich metaphor as science becomes the flickering candle flame, illuminating and banishing the darkness of a superstitious past. Among Wright's fellow members of the Lunar Society was Erasmus Darwin, whose grandson Charles would later play his own part in the battle between science and religion with the publication of his pioneering work, *On the Origin of Species*.

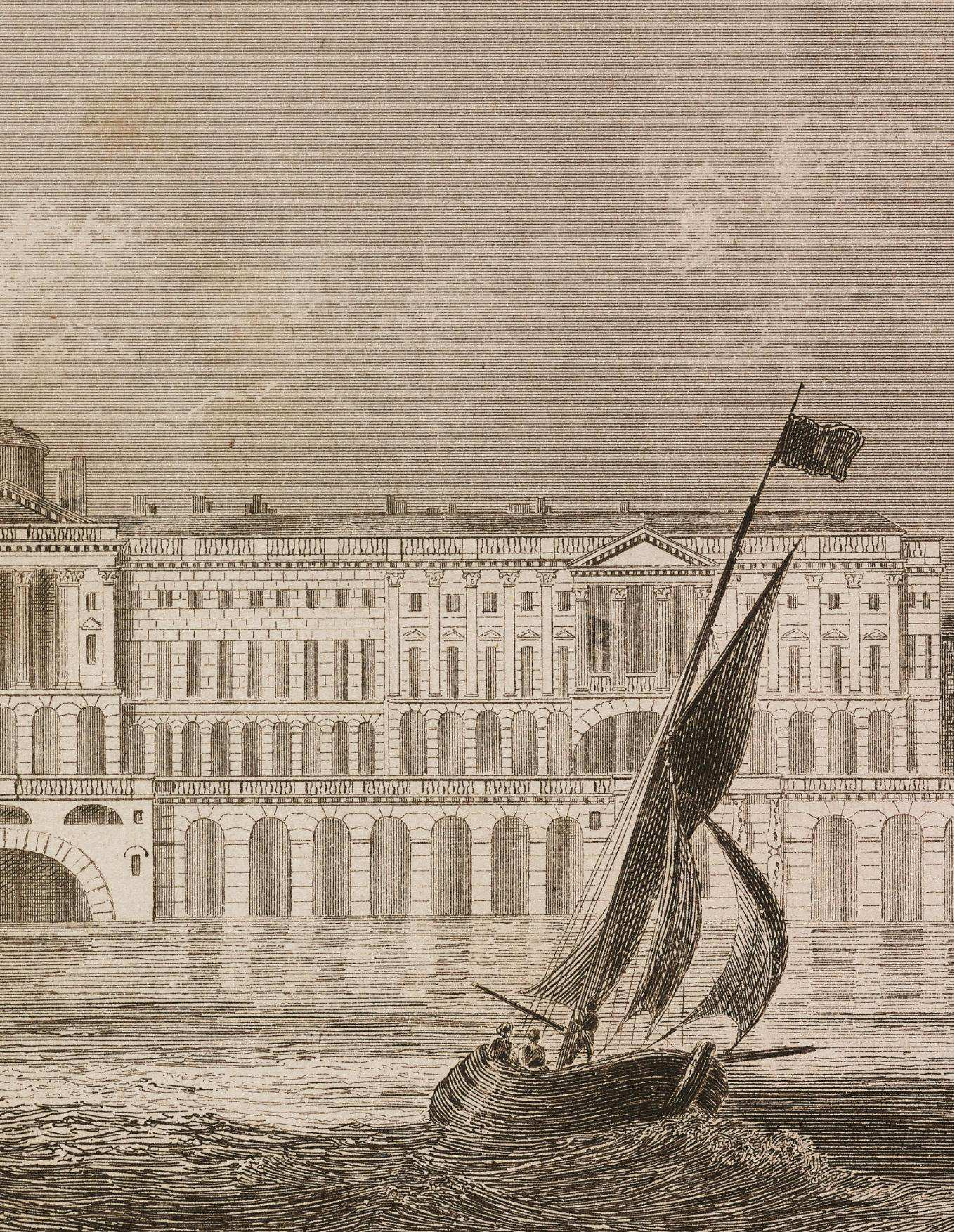


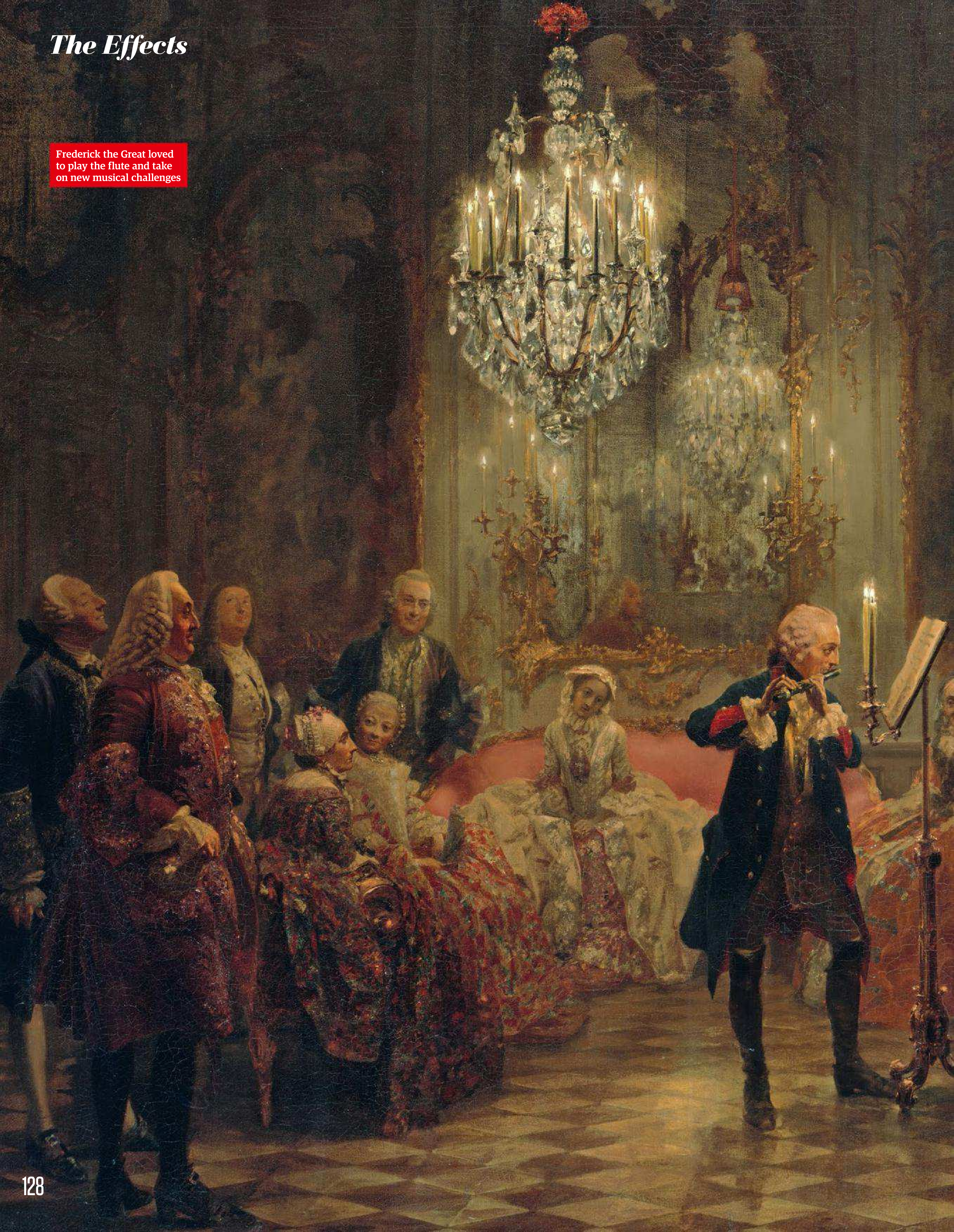
Joseph Wright of Derby captured the Age of the Enlightenment and the magic of science in his remarkable paintings

SOMERSET HOUSE

In 1775, William Chambers began work on the new Somerset House on the bank of the River Thames in the fashionable neoclassical style. Four years later, it became home to the Royal Academy of Arts and before long it was a hub of Enlightenment activity with the Royal Society and the Society of Antiquaries joining them in 1780.







Frederick the Great loved to play the flute and take on new musical challenges

Music in the Enlightenment

Melody and new ideas were drawn together in perfect harmony as music became a tool to change the way the world thought

Words by June Woolerton

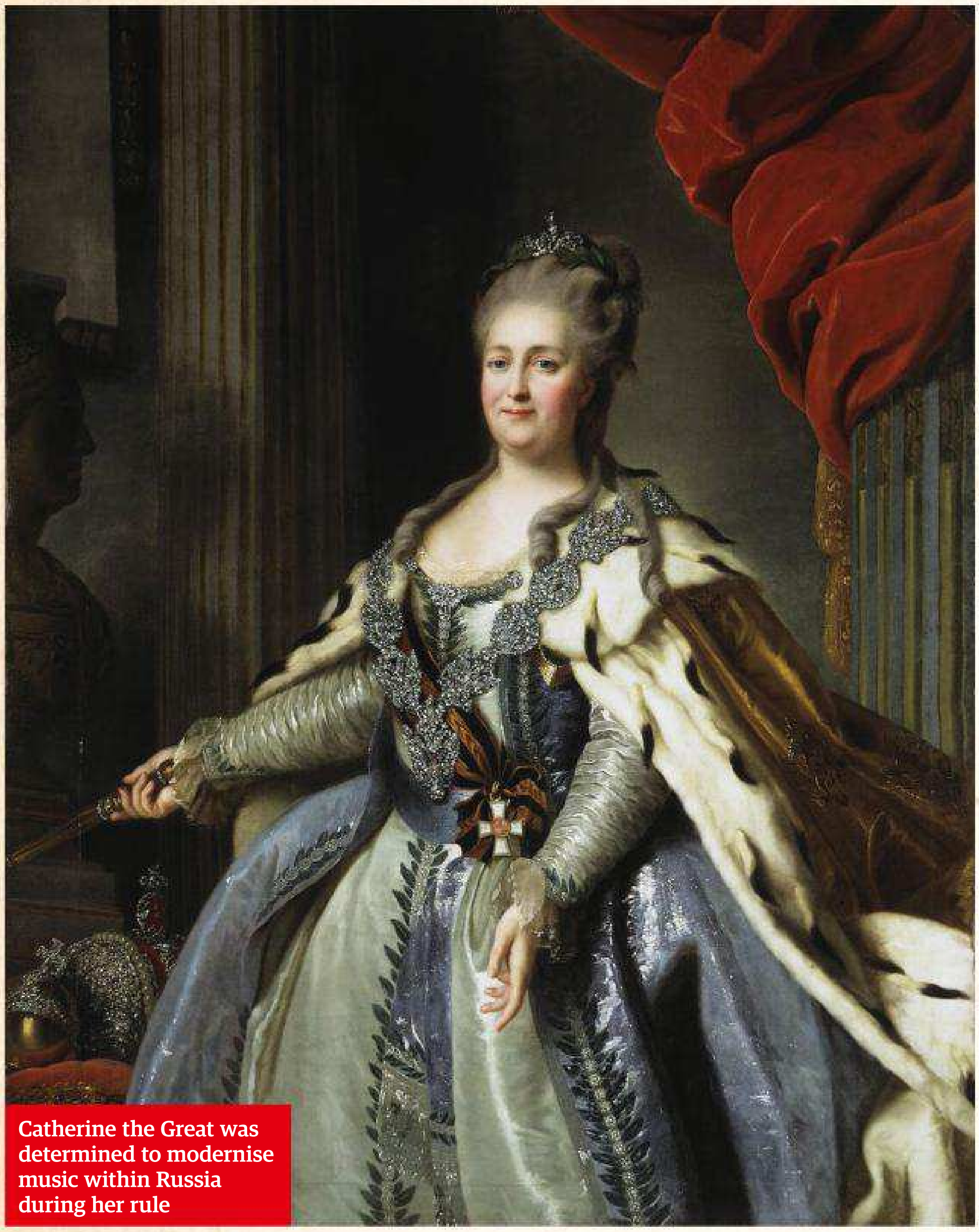
Wolfgang Amadeus Mozart's opera *The Magic Flute* was an instant hit from the moment it debuted in 1791. The first performances in Vienna drew huge crowds that kept coming back for more. Its appearance, at the traditional end of the Enlightenment era, underlined how much had altered in just a century. Populist, yet filled with radical ideas, it summed up everything that music in the Age of Enlightenment had become.

Enlightenment composers, much like the philosophers and writers of the time, believed in increasing accessibility so that music stretched across all parts of society. After centuries of music being written predominantly for church or court performances, the new way of thinking focused on bringing art to all. As the Baroque era began to give way to the Classical in the early part of the 18th century, there was a growing belief that music was just as important as words and could communicate truth over superstition just as well, if not better, than literature. The age of Enlightenment saw a new focus on music as a way of revealing the human condition and as a medium to be enjoyed by everyone.

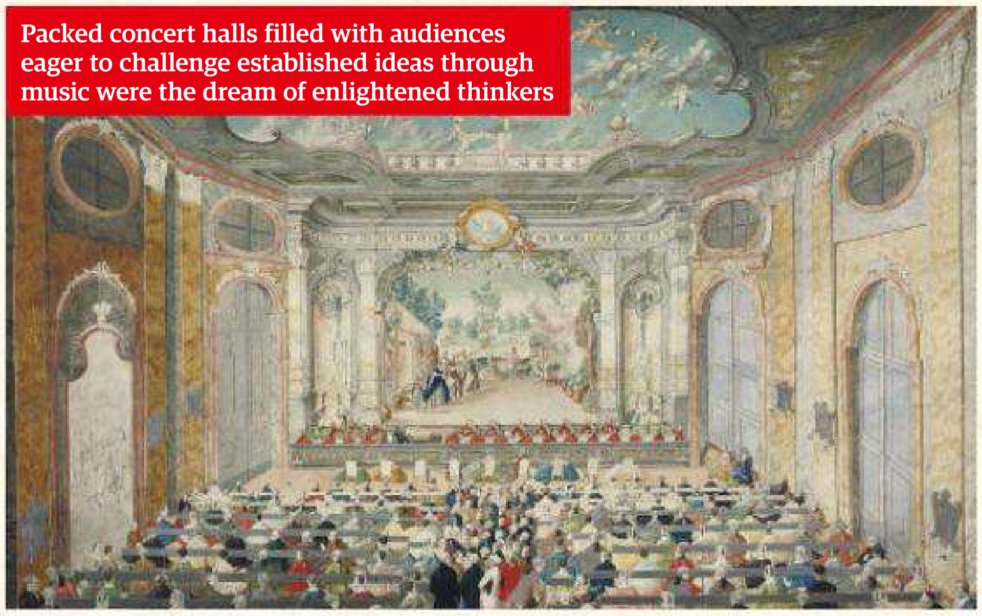
L'Encyclopédie, the great written record of the Enlightenment, contained hundreds of articles on music, most of them by Jean-Jacques Rousseau. The great thinker was also a composer and had such strong beliefs about the role of this art form in society that he ended up embroiled in a major row about music philosophy between 1752 and 1754. Rousseau believed that the communication of emotion was the real point of music and several of his major works, including the 1752 opera *Le Devin du Village*, put the human experience at their heart. Taking as its central theme the tricks played on lovers by a soothsayer before true romance conquers all, it also communicated a powerful message against the accepted superstitions of the day. As its popularity spread, it took those ideas with it.

It would be a theme of music in the Enlightenment era. Some of the most famous

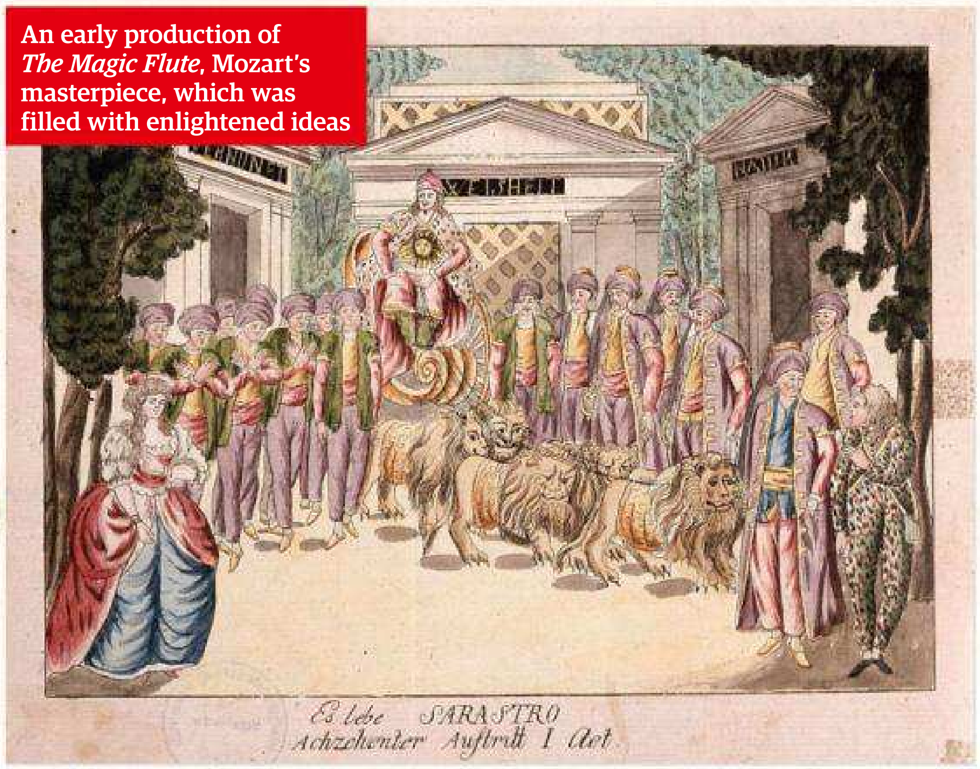
> "Some of the most famous works of the time tackled previously taboo subjects"



Catherine the Great was determined to modernise music within Russia during her rule



Packed concert halls filled with audiences eager to challenge established ideas through music were the dream of enlightened thinkers



An early production of *The Magic Flute*, Mozart's masterpiece, which was filled with enlightened ideas

"Performing on a large stage to as many people as possible was a central aim of Enlightenment musicians"

works of the time tackled previously taboo subjects as the push to expand ideas and challenge long-held opinions permeated society. The dominance of religious and aristocratic patrons, charged with ensuring the morality of the established Church was respected, meant that many of the themes adopted in grand works were pious and often unappealing to a larger audience. In the Age of Enlightenment, the focus on revealing human truth and sharing it as widely as possible - of putting everything in the public sphere - meant that topics such as love, betrayal and the power of the human mind took centre stage in musical works in the era.

Mozart put the famous rake, Don Juan, centre stage in one of his operas, while Joseph Haydn, better known for his choral and orchestral works, wrote several operas based around love and deception. Christoph Gluck was among the composers who used the well-known tales of the ancient world, such as Orpheus, to challenge contemporary morals.

With Rousseau, among others, arguing that melody was just as important as literature in spreading ideas, the structure of composition also came under challenge. While the early Baroque period had seen the rise of tonality, the later Baroque and early Classical eras that coincided with the height of the Enlightenment saw an interest in varying composition. Haydn revolutionised chamber music, again to give it a wider appeal, and brought in the popular piano trio style.

Across Germany and Austria, a development of the already known singspiel became increasingly popular as a method of musical expression, mixing spoken word with songs and ballads. Johann Sebastian Bach developed intricate and complex musical variations, including a six-voiced fugue. Gluck was instrumental in altering the perception of musical drama, ending the dominance of the opera seria and initiating structural changes, which made works shorter and more accessible.

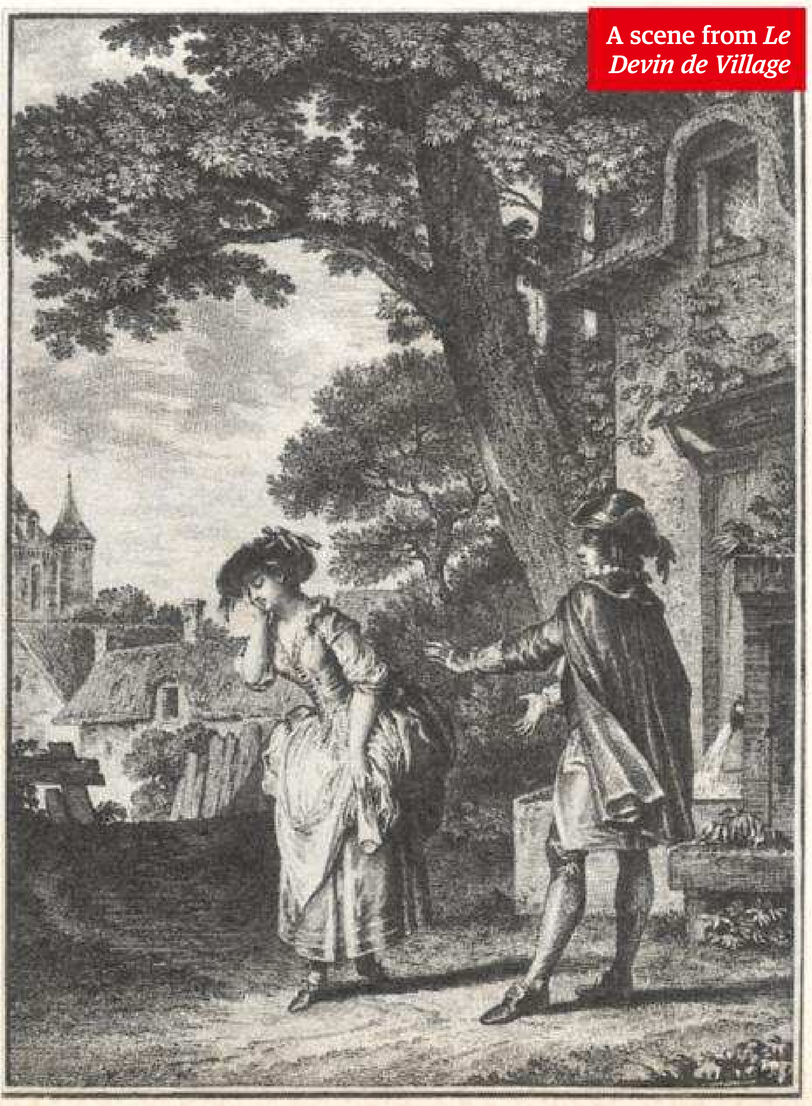
Performing on a large stage to as many people as possible was a central aim of Enlightenment musicians. It brought immediate rewards for successful composers, but others also benefitted from this new determination to make music as accessible as possible. Singers, actors and musicians found increased employment opportunities while the trade in printed music grew as the demand for performances increased. Music became a hot topic of debate in the salons and coffeehouses that were taking root across the continent to discuss the new ideas and the first widely circulated pamphlets on the topic began to appear. They were able to discuss the new forms of musical expression that were coming through as Enlightenment ideas took hold across Europe.

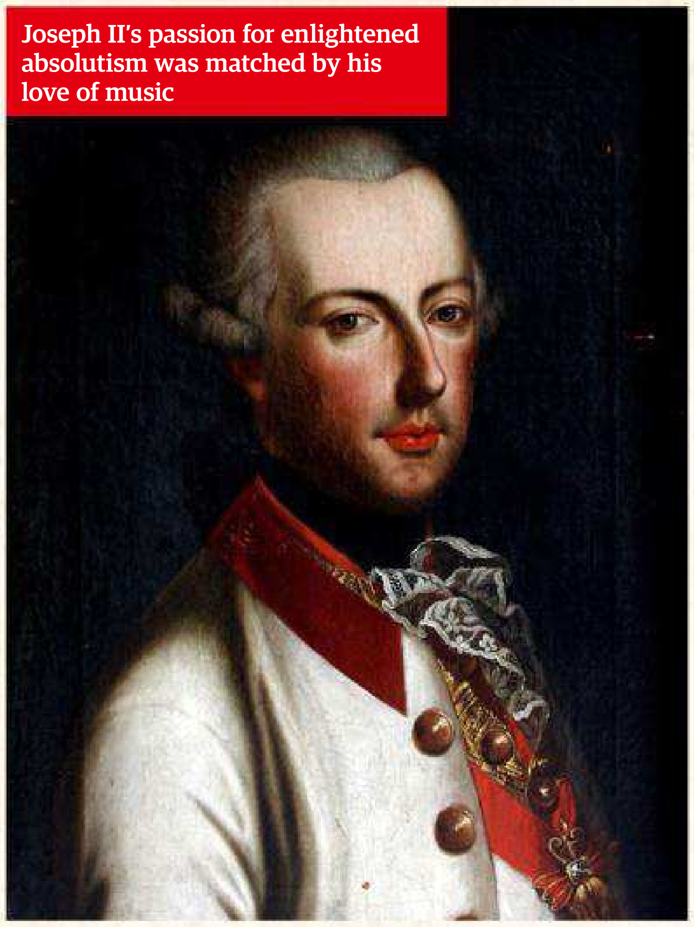
But the shift was slow and subtle to begin with. While Mozart found success with compositions including *The Magic Flute* and *The Marriage of Figaro*, he also needed patronage to be able to survive. The musicians of the Age of Enlightenment walked a fine line between developing works for the public and having enough money to be able to create as freely as they desired. However, the adoption of enlightened ideas by a number of ambitious rulers led to a further expansion of music in the era.

Mozart's great patron was Joseph II, emperor of Austria, who throughout his reign showed an almost fervent commitment to the concept of the 'enlightened despot'. His patronage of Mozart and other emerging talents earned him the nickname of the 'musical king'. Among the royal commissions given to Mozart by Joseph was the 1782 work *The Abduction of the Seraglio*, which debuted in Vienna in 1782. It was performed by the National singspiel, which Joseph had established to promote German language works as the public appetite for accessible music grew more widely.

Frederick II of Prussia also wanted to spread music more widely around his realm. His court at Sanssouci in Potsdam had become a hub for talent, renowned for its excellence, and a base for establishing all kinds of music across his kingdom. One of his first actions after taking the throne was to begin the building of the Berlin Opera, which opened in 1742, and Bach's son, Carl, was among the musicians to enjoy his patronage.

The Russian empress Catherine the Great took her high-profile support of Enlightenment ideas into the field of music as she tried to encourage the development of opera in her country. While her predecessors, Empresses Anna and Elizabeth, had brought the medium to Russia, it was Catherine who promoted it. She sent composers including Maksym Berezovsky to Italy to learn new techniques in the hope of influencing Russian music. During her reign, musicians like Mikhail Sokolovsky began to produce their own versions and Catherine herself was responsible for several librettos. She founded the Imperial Opera in 1783 and ordered the construction of the Bolshoi Theatre for the large-scale production of music and dance.


A scene from *Le Devin de Village*


Joseph II's passion for enlightened absolutism was matched by his love of music

It was a trend echoed across the continent. Opera houses and theatres became attractive to investors as the appetite for music grew. The industrial changes going on at the same time meant that musical instruments were easier to make and more affordable to the growing middle classes who wanted to reproduce the aristocratic lifestyle in their own homes.

The printing of music also became more widespread and was soon seen as another way to spread ideas among wider parts of society. While major works got their premieres across the famous capital cities of Europe, the demand for music as a performance art saw amateur performers in demand as well-known pieces were taken to the rural provinces.

Meanwhile, opera stars like Farinelli became celebrities, with fame to rival the composers whose works they performed. By the end of the 18th century, such was the focus on making accessible, populist works that could serve as a vehicle for changing ideas that musicians like Mozart put more focus on writing their creations to suit the stars they knew would be performing them.

It was against this background that *The Magic Flute* came to the stage, just as the Enlightenment reached its zenith. At its heart was a story of the transformation of human thinking from superstitious to rational and enlightened, tailored by Mozart to suit the performers who would bring it alive through melodies that caught the imagination and ensured that stalls were packed out every night. It would spread across the continent within months, taking its ideas to other, new audiences. The philosopher's dream of telling truth through the beauty of art had been given a striking testament with one of the most famous Enlightenment compositions of all.

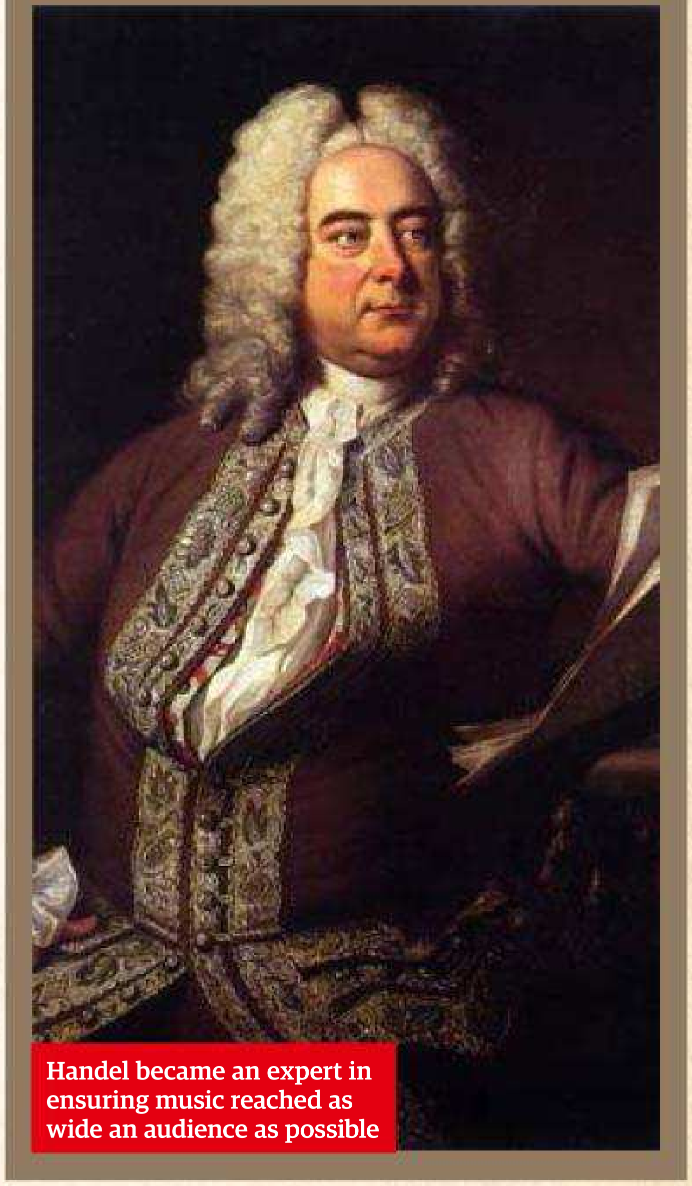
Bringing music to the masses

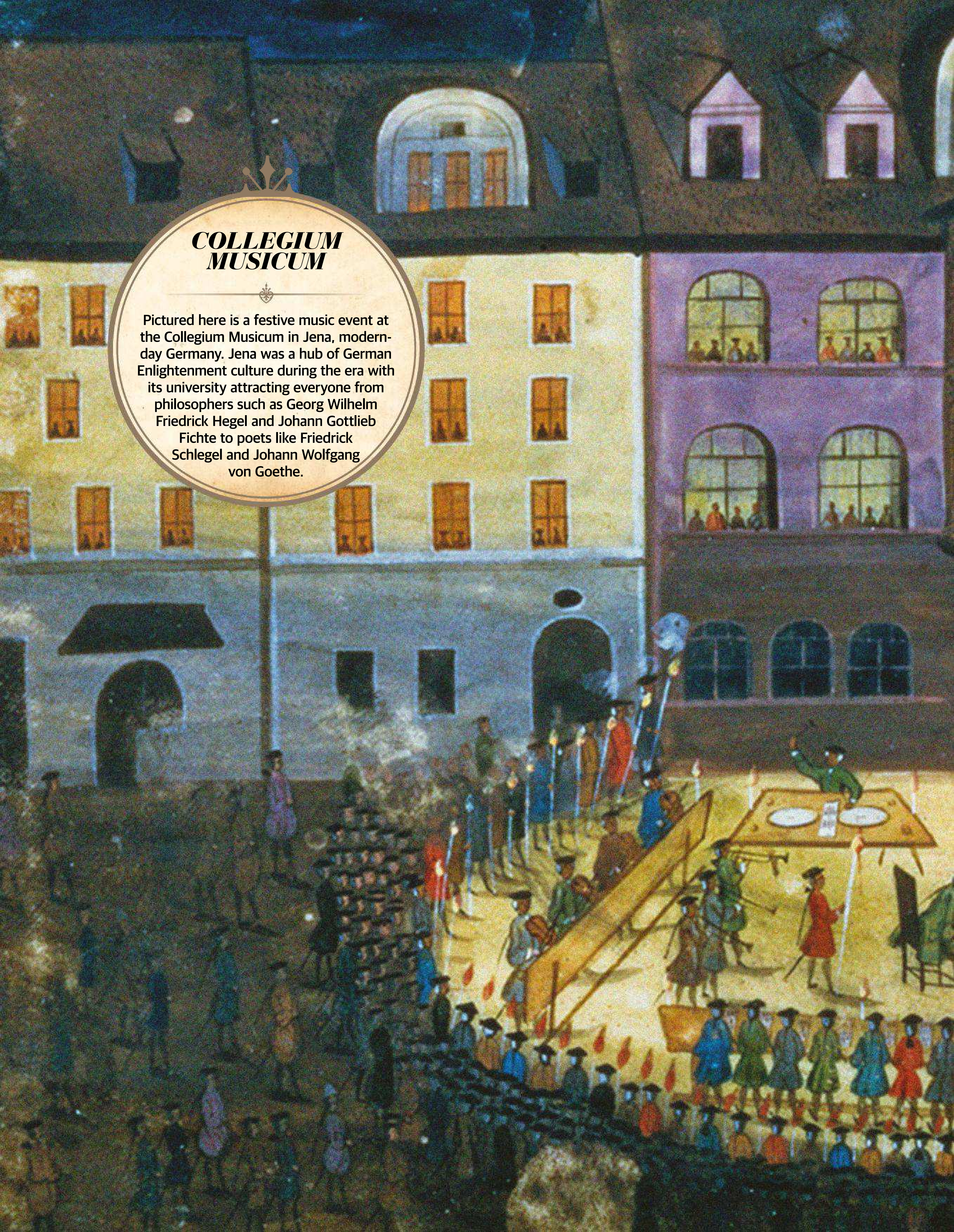
Handel's patriotic music brought out huge crowds, fulfilling the Enlightenment dream of bringing art to all and not just the ruling elite

The Enlightenment challenged long-held religious views, but one musical maestro found a way to turn the established Church into an opportunity to bring his melodies to the masses. While George Frideric Handel was director of the Royal Academy of Music in London, he used strict rules about the kind of music that could be performed during Lent to find an eager audience for some of his most audacious compositions.

As the idea of music as a mass entertainment really took hold, Handel knew there were thousands of people in London who wanted to listen to concerts during the Lenten period when theatrical performances were banned. So he produced a series of oratorios, with religious themes, that could be performed. Crowds, desperate for a night out, flocked to them.

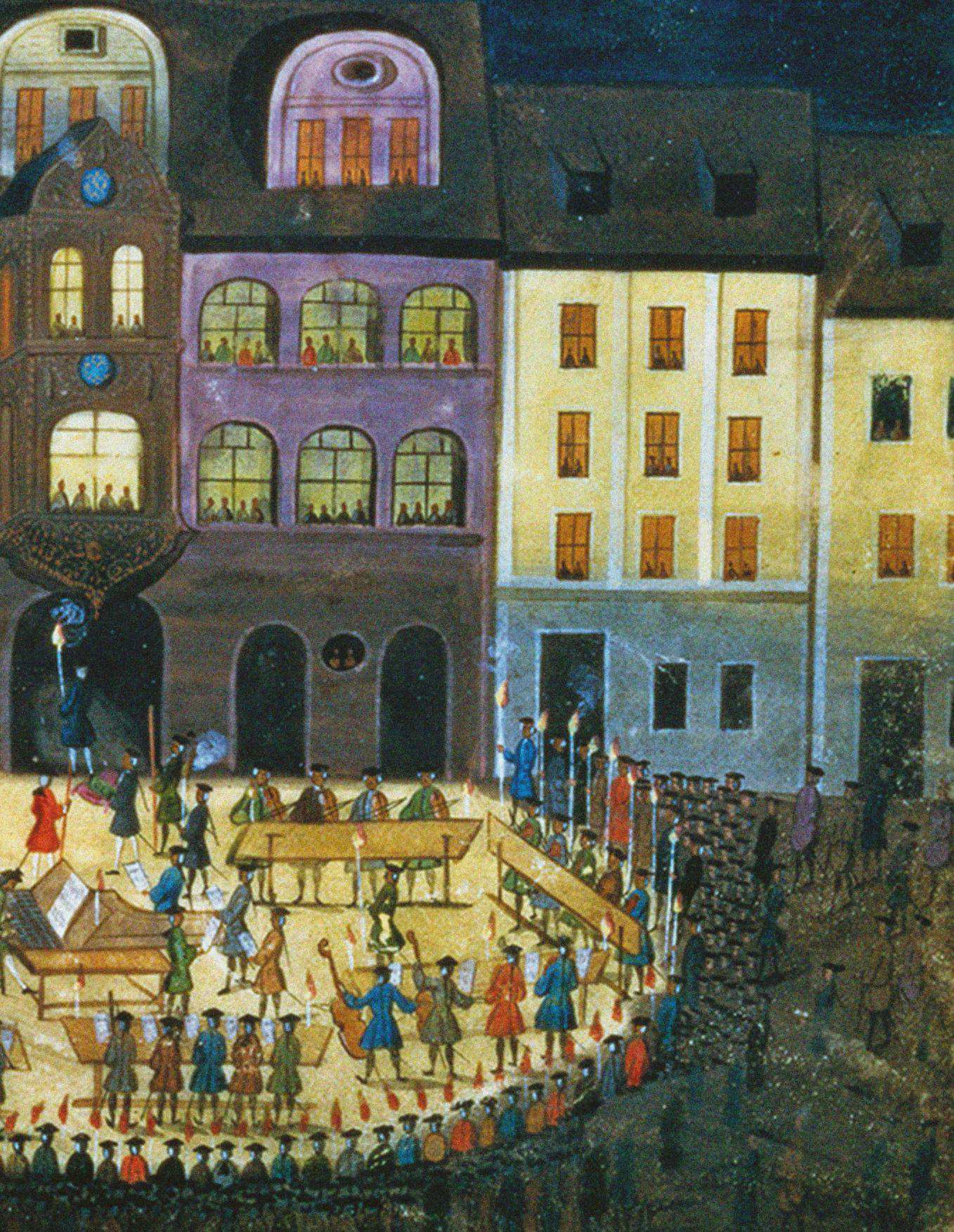
Handel realised the power of the oratorio in bringing music to a wider audience and poured his energies into their production. He was also a canny businessman and soon realised that the simpler format of the oratorio required less on stage production and was so more cost-effective than operas. His passion for this art form led to some of the most famous works of the 18th century, including *Messiah*.

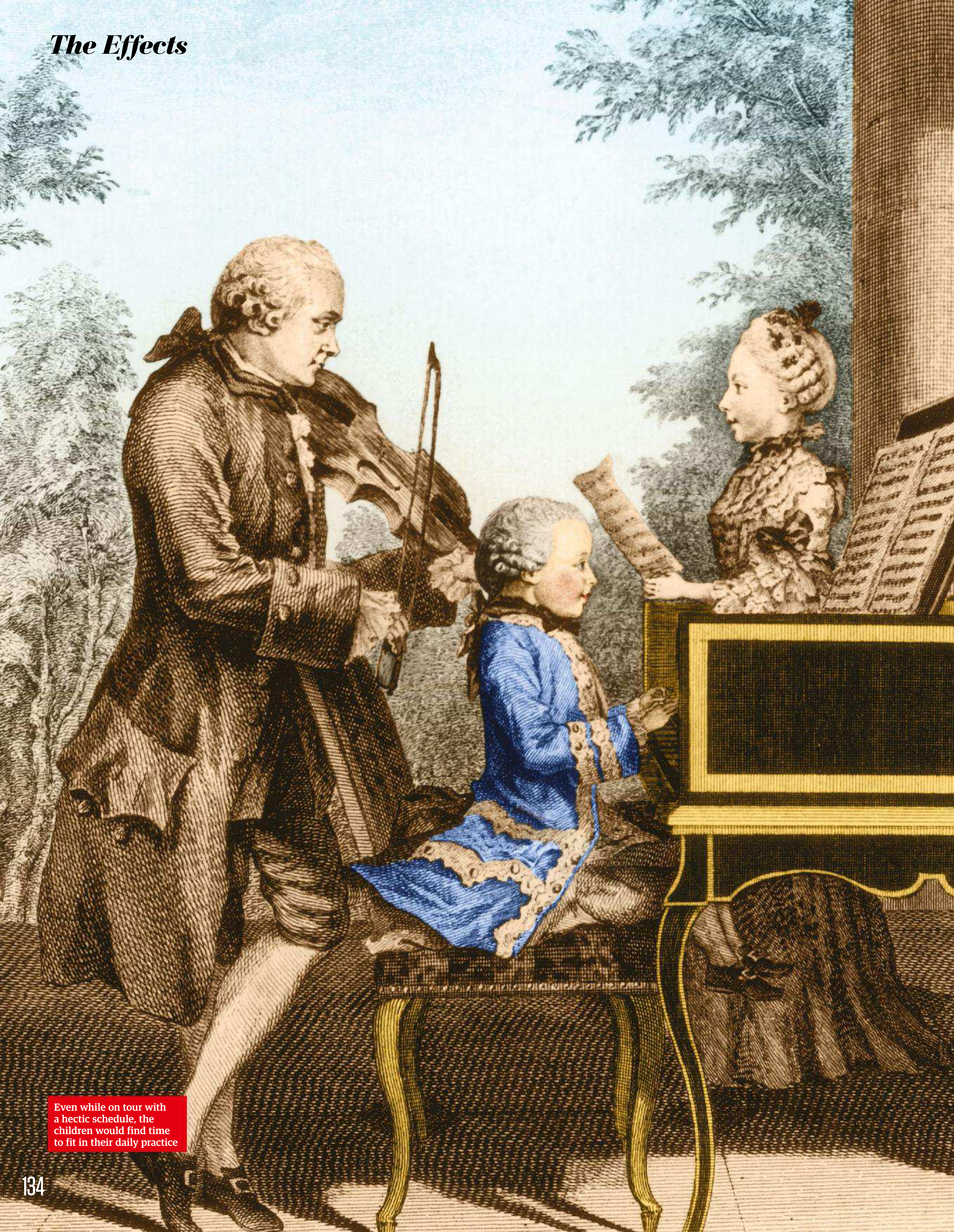

Handel became an expert in ensuring music reached as wide an audience as possible



COLLEGIUM MUSICUM

Pictured here is a festive music event at the Collegium Musicum in Jena, modern-day Germany. Jena was a hub of German Enlightenment culture during the era with its university attracting everyone from philosophers such as Georg Wilhelm Friedrick Hegel and Johann Gottlieb Fichte to poets like Friedrick Schlegel and Johann Wolfgang von Goethe.





Even while on tour with a hectic schedule, the children would find time to fit in their daily practice

The Other Mozart

In the 18th century, there was not one but two Mozarts who rocked the world with their talents

In 1829, the English author Mary Novello visited the ageing Maria Anna Mozart, sister of the celebrated composer. She was shocked by what she found - not only was the old woman blind, but she was living what appeared to be an impoverished life. Feeble, exhausted and barely able to speak, the lonely woman was a sad sight to behold. That same year, Maria Anna died aged 78 and was buried in her birthplace of Salzburg, Austria. However, Novello had been wrong. Looks can be deceiving: the old woman was not impoverished, she left a large fortune behind, but had chosen to live frugally.

Very few people truly knew Maria Anna or the life she had led, for much of it had been in the shadow of her brother. Even today we don't know the extent of her talents as, like most female musicians from the past, her work was not recorded and she herself was never given the chance to thrive. What could have been for the old, blind, feeble woman will never truly be known, but the role she played in her brother's life, hailed as one of the greatest masters of all time, is a truly remarkable - if seldom told - tale.

Maria Anna, better known by the affectionate nickname Nannerl, was born in the summer of 1751 to Anna Maria and Leopold Mozart. Leopold was not an easy man to live with. Headstrong, determined and stubborn, he had disobeyed his mother's wishes of entering the priesthood so that he could pursue a life of music as a violinist and organist. This decision to chase his dream estranged him from his mother, but it made him all the more determined to succeed. Many biographers emphasise the impact Nannerl's father had upon her, but it was the combination of her parents - a ruthlessly ambitious father and a mother willing to let him do anything - that would shape her life.

When a young Nannerl, aged just seven, sat down before a harpsichord and began to play, she was immediately followed by her younger brother, Wolfgang. The boy was four and a half years younger than her and idolised his sister. The two invented a secret language only they could speak and daydreamed about an imaginary kingdom where they ruled together as king and queen.

It only made sense that once Nannerl was old enough to learn to play, Wolfgang would immediately wish to do the same. At the age of just three, Wolfgang was uncommonly young to begin his musical education, but he had the advantage of a sister willing to act as teaching assistant to their father's tutelage, demonstrating and interpreting. Both children quickly excelled.

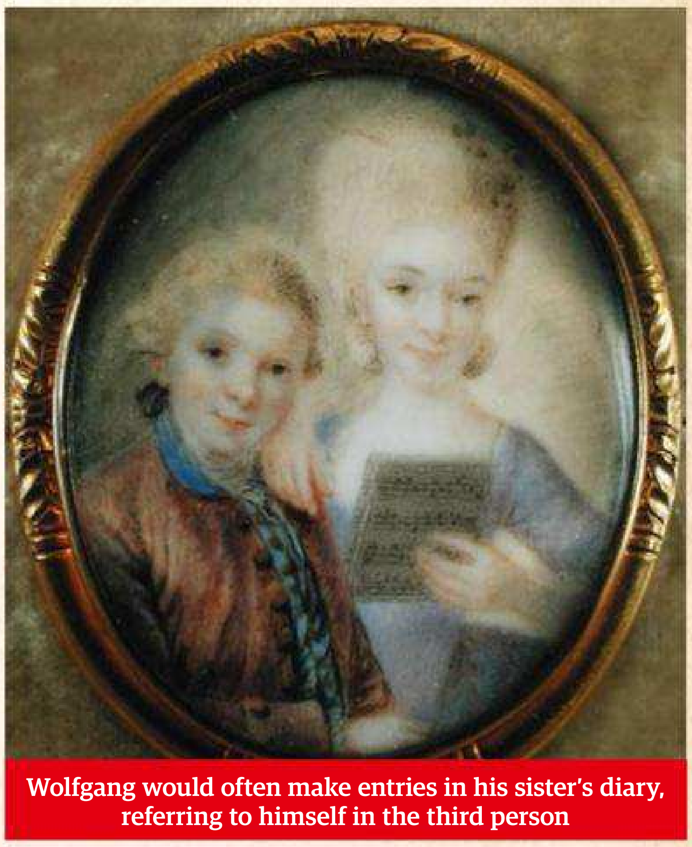
By 1762, Leopold believed his two little prodigies were ready to work as concert performers and their skills were proven when, during a visit to Vienna, they played for Empress Maria Theresa at the imperial court. Immediately recognising the opportunities his two children presented him and the gimmick of their young ages, Leopold quickly pushed aside his own dreams of success to focus on his children. In 1763, he planned a grand tour that would ensure the siblings and their musical talent would make waves among the most powerful people in Europe.

The Mozart family's tour was extensive, lasting three years, with the entire family travelling to the biggest cities in central and western Europe. When Leopold had planned the tour, it was certainly not with monetary gain in mind — in fact, much of the profit made went towards lavish living expenses.

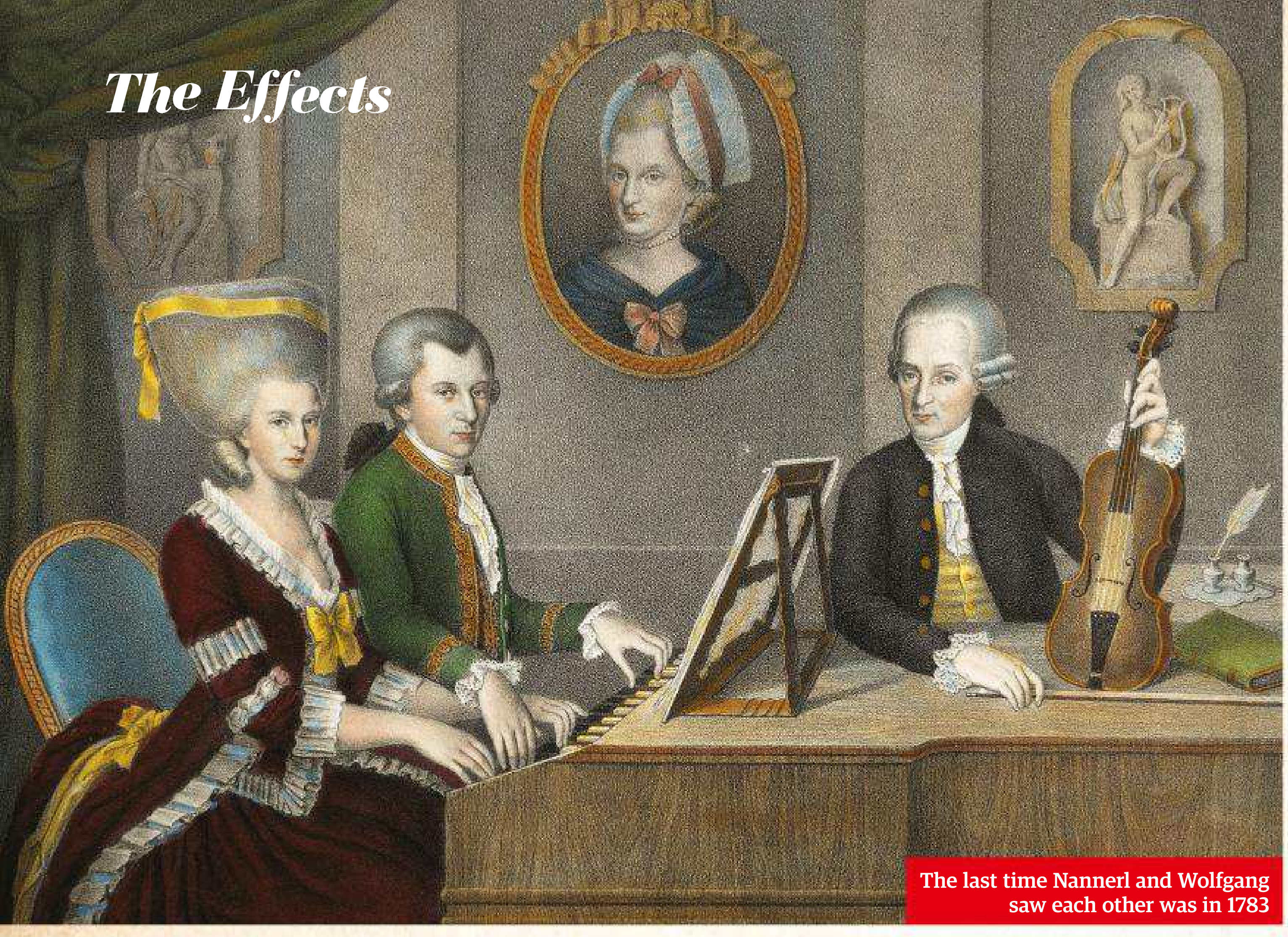
Leopold had something to prove. He wished to make an impact across the continent with his children's talents. He himself had been promoted to deputy Kapellmeister, or conductor, in the orchestra of the Prince-Archbishop of Salzburg, but he would rise no further. He would be ignored and watch others promoted above him for years to come, but it was a sacrifice he was willing to make for he saw something more worthwhile in his son and daughter. As strict and domineering as he was, Leopold was utterly and completely devoted to his children and willing to sacrifice pretty much anything for them.

For Nannerl, the experience was life-changing, breathtaking and eye-opening. Aged just 11, and a girl at that, she was able to see and experience things that few others would in their entire lifetime. Music had instantly transformed her life and, although her father's schedule was demanding and no doubt exhausting, she adored playing for the princely courts they visited.

Although it is Wolfgang who would no doubt receive top billing today, in much of the contemporary promotion material it was Nannerl who headlined the show. Her skill in playing pieces written by the masters led her to be hailed as "virtuosic", "a prodigy" and a "genius". She wowed



Wolfgang would often make entries in his sister's diary, referring to himself in the third person



The last time Nannerl and Wolfgang saw each other was in 1783

audiences across Europe from Munich to Paris, London to Zurich.

This was certainly not a tour for the young Wolfgang on which his sister simply just tagged along. It would have been natural for Wolfgang, the tiny little seven-year-old in his wig, his short legs barely reaching the pedals, to achieve the most attention, but his sister's skills shone through. However, there was one key difference between the two: after a childhood spent watching her mother obey her father, Nannerl learnt to be very good at doing what she was told. Wolfgang, on the other hand, was encouraged to create.

While touring just outside London in 1764, Leopold fell ill and the two children were ordered to keep it quiet. Wolfgang took this opportunity to go to his closest companion, his sister, and request she write down his first symphony. Years later, Nannerl would recall that he said, "Remind me to give something good to the horns!"

It is impossible to know if Nannerl simply wrote down what her brother told her to or if she collaborated and offered some ideas. However, it seems unlikely that he would request his sister only to be a quiet scribe. He adored and idolised her. Naturally there may have been some sibling rivalry, but he undoubtedly respected her abilities, so it is not too much of a leap to say that she could have made suggestions. The piece is ultimately credited to Wolfgang, and it is important to recognise his gift and talents even at so young an age. But it is also inconceivable to ignore the influence and role his sister played in his musical development, especially in his formative years, whether that was as a fellow composer, or simply a source of encouragement during those early years.

Unfortunately, this partnership would experience a sudden and severe fracture. In 1769, Nannerl turned 18, meaning she was of marriageable age, which, as far as her father was concerned, signalled the end of her performing career. As father and son continued to travel around Europe and play to distinguished audiences, Nannerl now remained at home with her mother.

Although Nannerl wrote much correspondence, there is no record of her bemoaning this fate or showing any contempt towards her father for it. Not only was she astonishingly obedient, she was a product of her time. This world was not one where women had their own voice - had she fought her father on this issue, the scandal would have been devastating for the family. So the girl whose life had been led by music and travel stopped performing and did as she was told.

Although they were apart, the strong relationship between the two was obvious. Wolfgang jokingly refers to her as "horseface" and wrote to her with the same bawdy humour he shared with his closest companions. Significantly, he sent her compositions and craved her approval, repeatedly demanding her to "tell me quite frankly how you like it" and begging her to write to him, even if she has nothing to say.

Nannerl was forced to watch her younger sibling be praised while she languished, but she appeared to hold no ill will or grudges. Most impressive of all, and a testament to her spirit, is that although the glamour of the stage had been taken from her, Nannerl did not stop indulging in music. Not only did Wolfgang send her a number of works to perform, but there's evidence that she herself wrote her own, as in 1770 he wrote, "I am amazed to find how well you can compose. In a word, the song is beautiful. Try this more often." Enthusiastic, encouraging and thoughtful, Wolfgang was unwilling for Nannerl to lose her connection to the thing that had brought them closer - music. Nannerl, as obliging as she was to her father's wishes, continued to play.

Wolfgang, however, was a little too much like his father in one way in particular: his headstrong rebelliousness. Leopold wished for his son to obtain a professional position, something that was especially pertinent when Wolfgang and Maria Anna's mother died in 1778, and the salary would

Wolfgang's wife

The disliked woman who helped to secure the famous composer's legacy

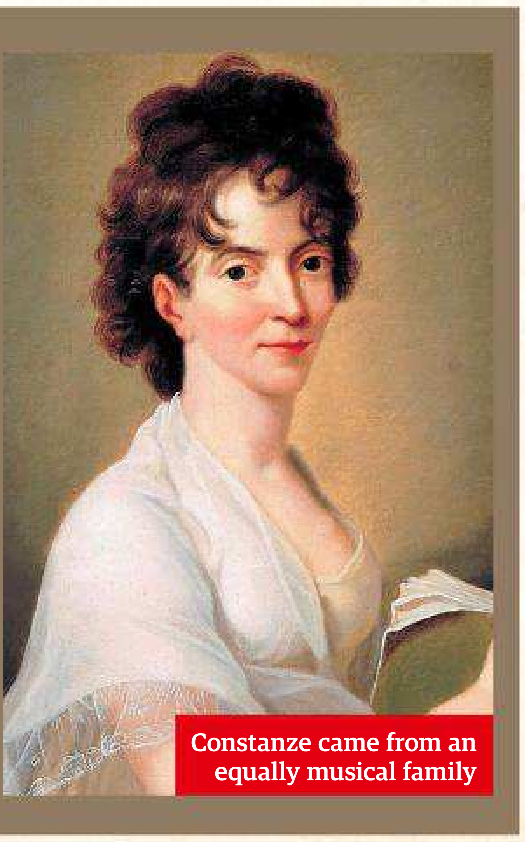
Many of Wolfgang Mozart's biographers have little good to say about his wife. She is described as dim-witted, flirtatious and a bad influence on her husband and there were many who held this belief when she was alive, but it simply wasn't true.

Constanze Weber came from a family of skilled and talented musicians who lived in Mannheim, an important musical centre. But one of the main reasons why Mozart's family were so displeased with the union was because Constanze moved in with her husband before they were wed and they were married before Leopold could consent.

Many saw Constanze as a harlot but she was a sophisticated and shrewd businesswoman. When Mozart fell into debt, she took to action organising a house move and setting up loans and publications. Not only did her own musical tastes, such as Baroque counterpoint, greatly influence her husband's work, but he also wrote soprano solos intended for her.

Constanze's dedication to her husband did not end with his death. Aged just 29 with two young children, she set about ensuring her family's stability and her husband's legacy by arranging memorial concerts. She also toured Germany and Austria, performing her husband's work with her acclaimed sister, Aloysia, and support for Mozart's music grew and grew.

Even when Constanze remarried, it was with the spirit of her husband in mind. She and her new husband, Georg Nissen, worked together to publish Mozart's music and create his biography. When Nissen died, Constanze alone marketed and sold the book to publishers, creating not only a considerable fortune for herself, but a lasting memorial to her two husbands.



Constanze came from an equally musical family have enabled Nannerl to leave Salzburg. However, he moved to Vienna without a salary in 1781 and married a year later. Leopold remained in Salzburg with his daughter, and the two of them shared a degree of disillusion in Wolfgang. Nannerl had followed her father's wishes dutifully, but Wolfgang had acted out – and rather selfishly, too.

It became vitally important for Nannerl to find a suitor. She was intensely in love with a man called Franz Armand d'Ippold, but this union came to nothing. Instead she married the twice-widowed Johann Baptist von Berchtold zu Sonnenburg, who already had five children from his previous marriages. Wolfgang encouraged Nannerl to stand up for her own preference, but she was becoming disenchanted with her rebellious little brother and became more subordinate to her father. Nannerl did not marry until she was 33, unusually late for the era, and there is no good reason for this: she was clever, talented and well-mannered.

Nannerl's married life was not an easy one – she had to care for five ill-educated stepchildren and while her brother achieved fame around the continent, she relied on her father's aid. He did shopping for her, arranged servants and paid for her brother's music to be sent to her. When she visited him, he collected musicians together so she could play with them and even encouraged her to stand up to her husband.

This close relationship with her father distanced the two siblings further, as Leopold did not at all approve of his son's wife, Constanze. The pair had very little presence in Wolfgang's new life, but Nannerl still requested new pieces from her brother to play. It's thanks to Nannerl preserving these pieces that many of Wolfgang's cadenzas for the piano concertos survive today.

In the summer of 1785, Nannerl gave birth to her first child, a son, who she named after her father. She had travelled home to Salzburg to give birth and when she returned to Sankt Gilgen, she did not bring the boy with her. Leopold wanted to raise the child himself, first for a few months and then indefinitely. Although the boy's ill health in infancy could account for this, it doesn't explain why he remained there once he got better. It is possible that Leopold saw in his grandson a chance again to harvest musical genius, and he began giving him musical training at a very young age.

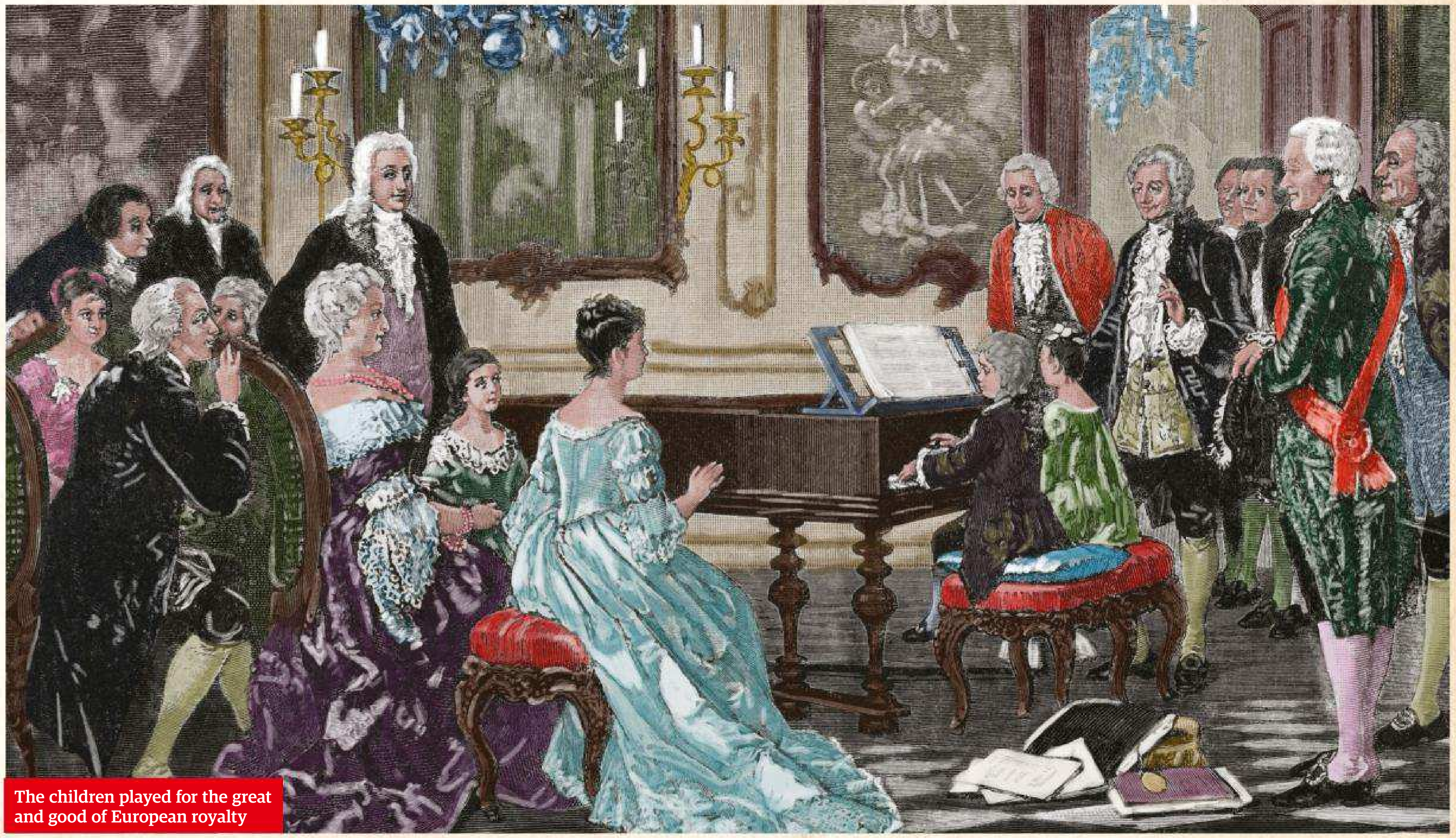
It is perhaps indicative of Nannerl's total subordination to her father that she let this happen and saw her son on very few occasions. Wolfgang heard about the arrangement through a mutual acquaintance and, when he asked his father if he could care for his own children while he was on tour, Leopold refused. Musical genius or not, it was very clear at this point who the favourite child was.

However, Leopold died in 1787 and Nannerl finally had to live her own life without his support. By the time Wolfgang heard of his father's death, he was already buried but, estrangement aside, the passing of such a strong and central figure in their life devastated both siblings. Wolfgang and Nannerl had written countless intimate letters to each other in their youth, but their correspondence now mainly concerned their father's estate and by 1788 they had stopped writing entirely.

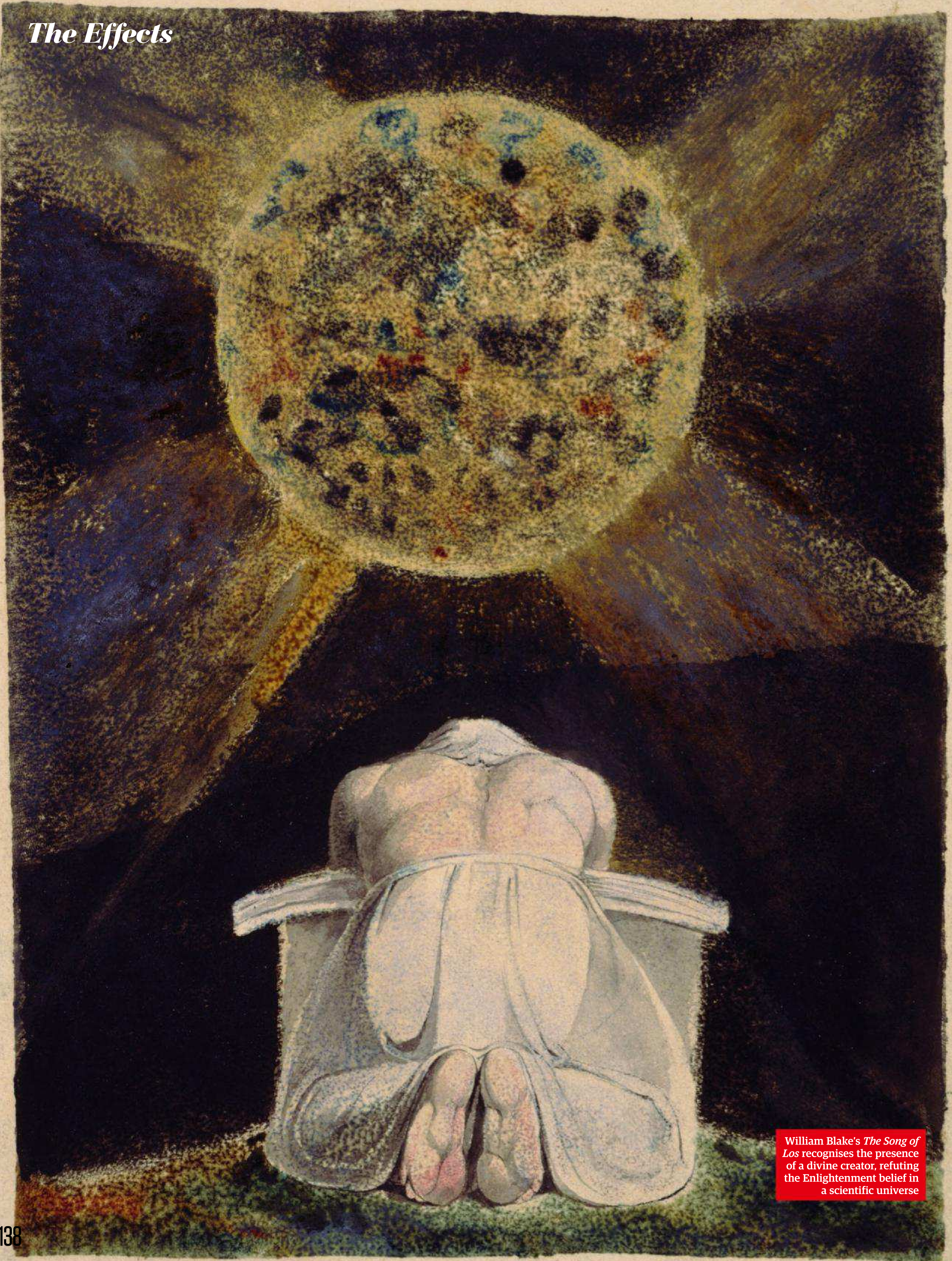
In 1801, Nannerl's husband died, and for the first time she was free of the influence and orders of men. She returned to Salzburg with her children and earned a living as a music teacher. Throughout everything, her love for music had endured.

Wolfgang died from a mysterious illness in 1791, and this seemed to awaken Nannerl to the relationship they once had. She wrote pieces for his biography and supplied many anecdotes about the brother she had known and loved. Despite being as disapproving as her father of Wolfgang's wife, she put that aside to work with Constanze on her brother's biography. Together the two women played an enormous part in assembling and handing down musical source material. She later wrote that when reading about her brother, her sisterly feelings were completely reanimated and she was often reduced to tears at the "sad condition" he found himself in. For Nannerl, her affection towards the little boy who would strive to copy his sister had never truly vanished, and now she did everything she could to preserve his memory and promote his work.

We have much to thank Nannerl for, as it was the period following Wolfgang's death that helped his reputation to grow. She gave over all of her private correspondence in order to see her little brother get the attention he deserved and, most likely, to help her beloved father achieve that which had been his life work – to create a musical legend.



The children played for the great and good of European royalty



William Blake's *The Song of Los* recognises the presence of a divine creator, refuting the Enlightenment belief in a scientific universe

The Post-Enlightenment World

When the Age of Reason faded, it left behind a very different world. It was one ripe for Romanticism, ready for the Industrial Revolution and a new era

Words by Catherine Curzon

The Age of Enlightenment didn't end with a bang, nor with a whimper, but with a gradual fade in the face of the rising counter-Enlightenment movement at the close of the 18th century. Enlightenment thinkers had stressed the importance of rationalism at the expense of a more romantic world view, but this wasn't a vision that everyone shared.

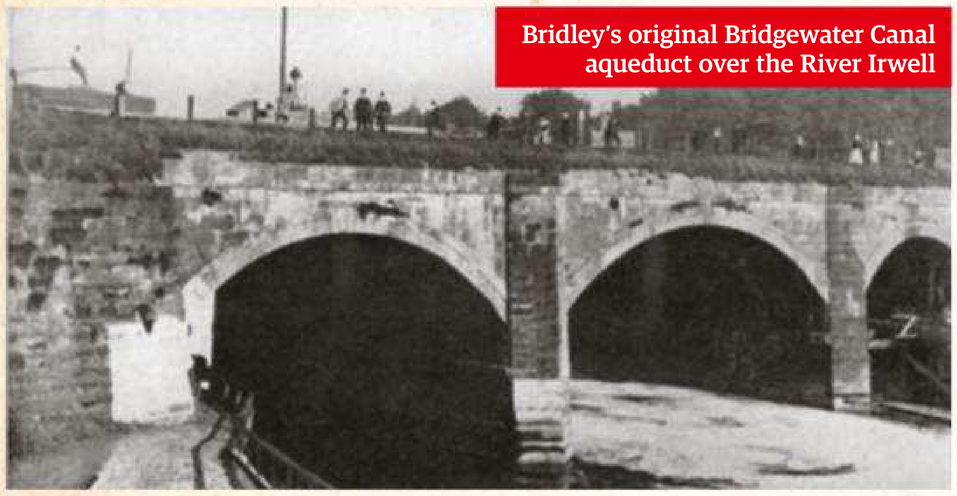
The first stirrings of discontent could be heard in Germany in the 1770s, where the Sturm und Drang movement emphasised emotional freedom in direct opposition to the controlled emotions encouraged by the Enlightenment. Soon the Age of Reason was under siege and when the Terror swept through France, its days were numbered.

By the time the French Revolution had ended, the Age of Reason was in its death throes. Some considered the Revolution a divine punishment from God for the sins committed against organised religion during the Enlightenment, while for others the Enlightenment had been instrumental in the French Revolution in a rather more literal sense. For its critics, the Enlightenment's championing of liberty and rational thought that questioned the divine right of kings had steered civilisation into an immoral vacuum where right and wrong merged in one desperate bid liberty. Here, there was no right and wrong - only cold, unswerving reason.

Waiting in the wings of the art and literature world were the Romantic philosophers, and theories couldn't have been more different to those that went before. The Romantics, embodied by figures such as Coleridge and Byron in England and Chateaubriand in France, believed that Enlightenment philosophers saw man as a rational automaton in an empty void of a universe. Such a philosophy, they argued, wilfully ignored the beauty and uniqueness of each human soul and the natural world. The Romantics urged a middle ground in which rationality was only part of humanity, alongside spirituality and intuition. Unlike Enlightenment philosophers, who believed that man must make his own destiny, Romantics imagined a universe that was subject to fixed laws beyond human manipulation.

If Enlightenment philosophers preached the importance of reason, the Romantics cried out for people to free their emotions. Humanity couldn't expect to control the universe but if emotions were freed and slavish reason dismissed, humankind might truly become one with the universe. For the Romantics, each individual's reality was shaped not by rational analysis, but by the way they interpreted it. Humanity wasn't simply a body and brain, but a deep consciousness that connected to the universe on a fundamental level.

The Industrial Revolution


Bridley's original Bridgewater Canal aqueduct over the River Irwell

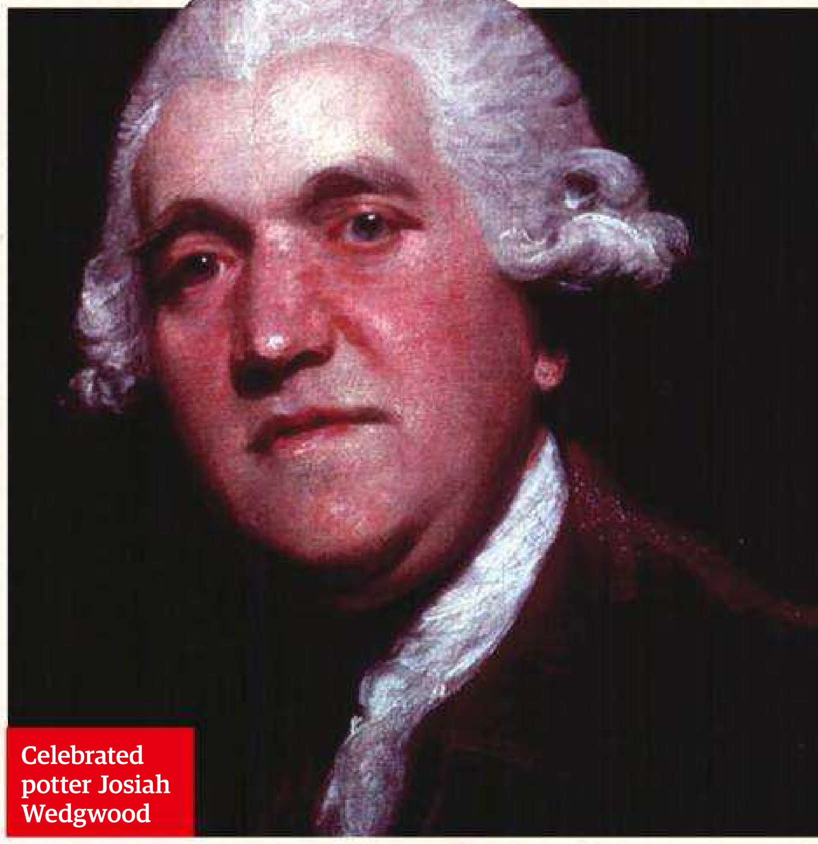
The first transport system 1761

The transportation of heavy goods was vital for the Industrial Revolution to take hold. Canals – man-made rivers deep enough to take barges laden with cargo over long distances – were seen as the answer. The Duke of Bridgewater employed novice engineer James Bridley to construct a canal to carry coal from his mines in Lancashire to Manchester. Opened in 1761, it was a great success. More canals followed, resulting in a canal network that linked the major industrial centres of the country.

The Etruria Works

1769

Innovative potter and abolitionist Josiah Wedgwood opened his Etruria factory beside the route of the Trent and Mersey Canal. Though incomplete at the time, Wedgwood saw the value of canal transport to distribute his products. And inside the factory, he introduced methods that greatly increased worker output. Wedgwood broke down the potter's skills – throwing, shaping, firing and glazing – allocating each task to a specialist worker. This was 'division of labour', a method of production later copied in numerous industries.


Celebrated potter Josiah Wedgwood

The heat is on
A coke-fuelled blast furnace is developed by Abraham Darby. Smelting iron ore becomes cheaper, greatly improving the production of cast iron goods.
1709

Shuttle work
Wool-mill manager John Kay invents the flying shuttle. The device weaves yarn mechanically rather than by hand.
1733

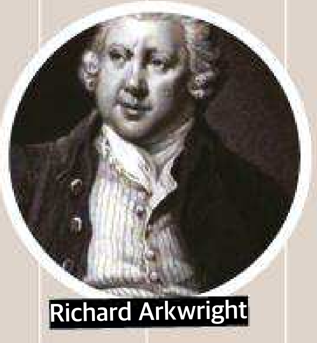
Spinning jenny model at Museum of Early Industrialisation, Wuppertal, Germany

In a spin
The invention of the spinning jenny is credited to James Hargreaves.
1764

Engines, engines everywhere
In collaboration with Matthew Boulton, Watt begins the manufacture of steam engines in Birmingham.
1774

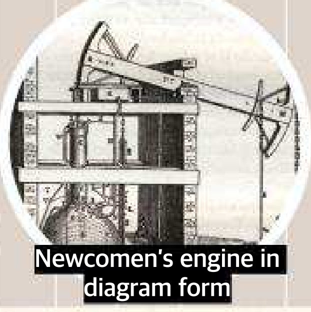
Donkey work
The functions of the spinning jenny and the water frame are combined by Samuel Crompton into one machine. It's called a spinning mule.
1779

Worlds collide
Richard Arkwright sees the potential of Watt's engines. He is among the first cotton-mill owners to use one.
1786


Richard Arkwright

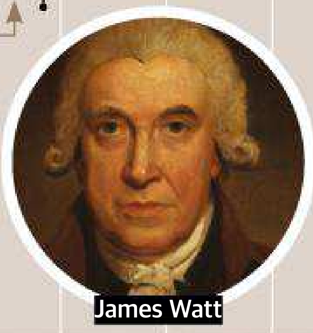
1709
1720
1750
1760
1770
1780

Head of steam
Thomas Newcomen builds his atmospheric steam engine – the first commercially successful such machine – used to pump water from deep coal mines. **1712**


Newcomen's engine in diagram form

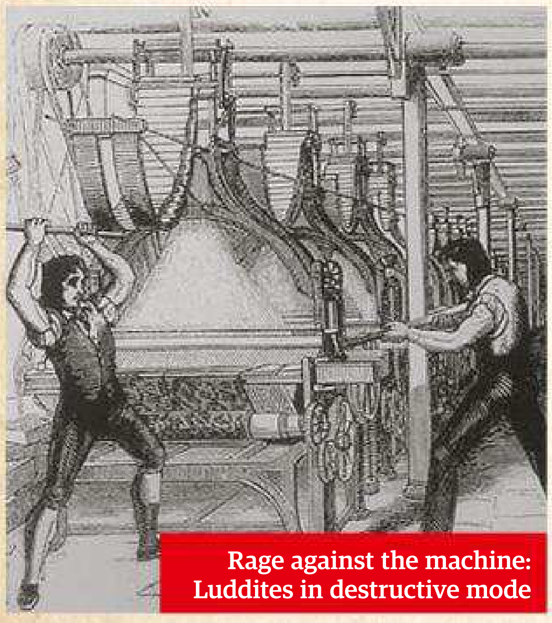
Just add water
Following collaborations with others, Richard Arkwright patents his water frame. It is a spinning device powered by a water wheel. **1769**

Enter James Watt
Adding refinements such as a separate condensing chamber, to Newcomen's machine, Scottish inventor Watt designs a more efficient steam engine.
1769


James Watt

Watt again
Further experiments lead James Watt to adapt his steam engine. He changes its up-and-down pump motion to a rotary motion for increased efficiency. **1781**

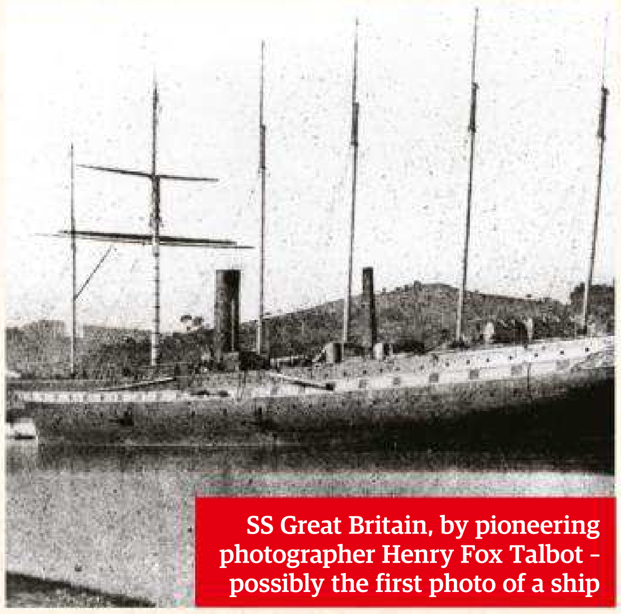
Loom for improvement
Another textile industry innovation comes from inventor Edmund Cartwright when he makes the power loom to aid weaving.
1785


Rage against the machine: Luddites in destructive mode

The Luddite riots

1811-1815

The Industrial Revolution brought change, but also unrest. Skilled workers facing job losses by the drive to mechanisation began breaking into factories to smash up machines. The mythical Ned Ludd was the supposed Luddite leader. The rioting became so bad that the government passed a law making machine-breaking a crime punishable by death.


SS Great Britain, by pioneering photographer Henry Fox Talbot – possibly the first photo of a ship

Brunel's Great Britain

1843

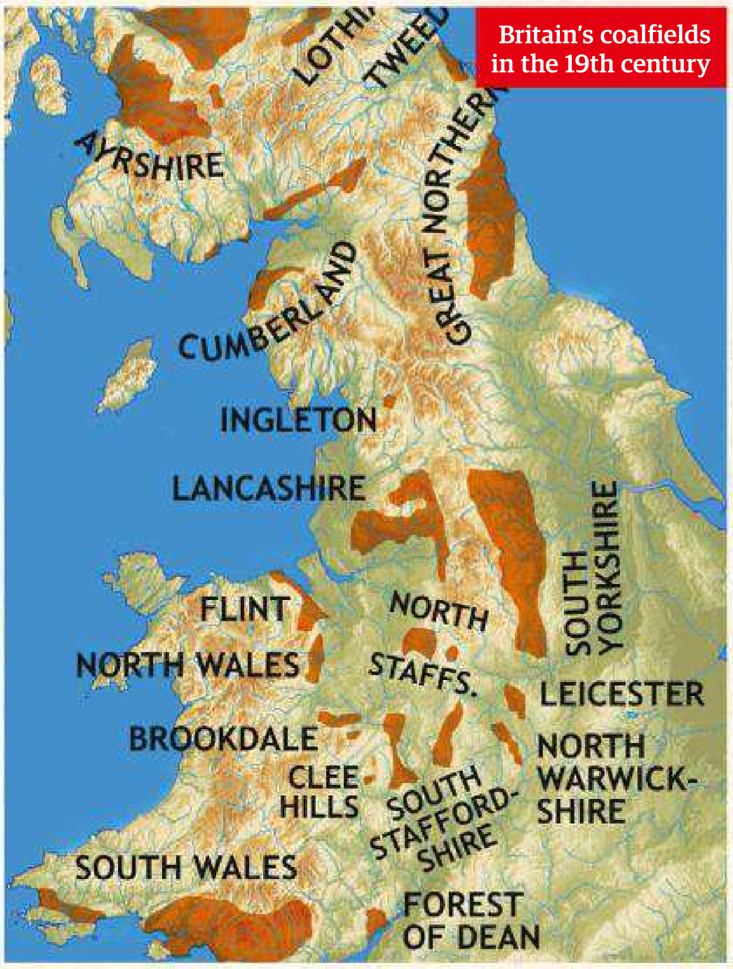
The achievements of civil engineer Isambard Kingdom Brunel were astounding. One of his finest was to design the SS Great Britain. The vessel is considered to be the forerunner of modern ships because it was the first to combine three elements; it was built of metal, it was powered by engine, and was driven by a screw propeller. Launched in 1843, it was the longest passenger ship in service until 1854. It survives today as a visitor attraction in Bristol.

Fuel of the Industrial Revolution

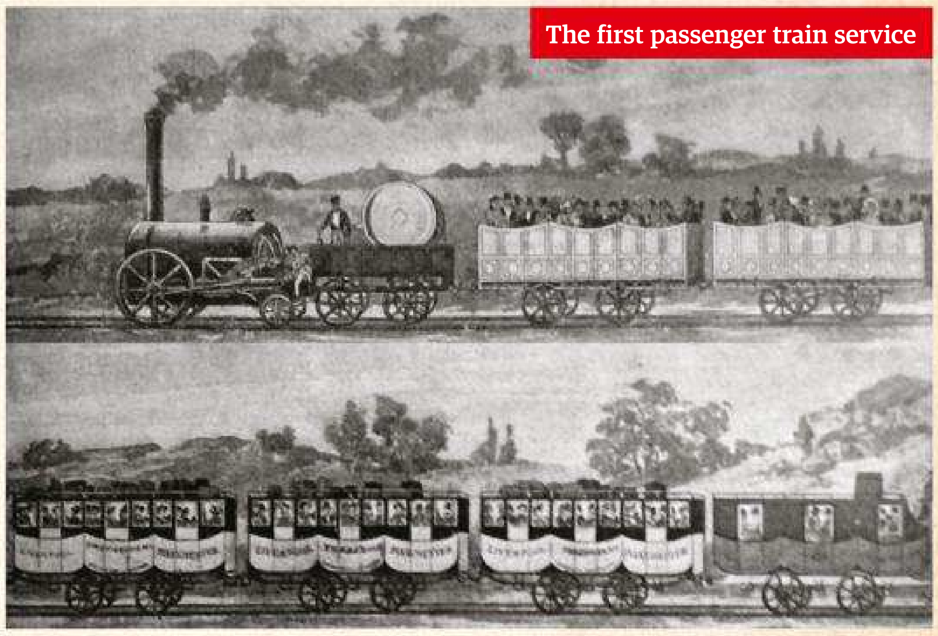
1900

As the number of steam engines and furnaces grew, the demand for coal increased rapidly. It was in plentiful supply in Britain, though changing from surface extraction to deep-shaft mining was necessary to expand production.

Mining coal was dangerous, with mine owners often ruthlessly exploiting a workforce that included women and children until the 1842 Mining Act. Nevertheless, coal production continued to climb - 10 million tons were mined in 1800, that figure rising to over 200 million tons by 1900.



Britain's coalfields in the 19th century



The first passenger train service

The train takes the strain

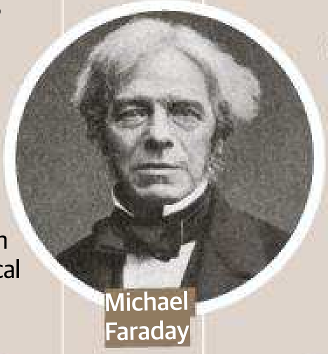
1830

The 56 kilometres (35 miles) of track between Liverpool and Manchester was the first successful railway line in Britain. Opened in 1830, it was designed to carry paying passengers as well as cargo. It made the transportation of goods and raw materials between industrial Manchester and the seaport of Liverpool cheaper and easier, signalling the end of the line for canal transport.

Across the globe
In the USA, Eli Whitney makes the cotton gin. The 'engine' separates seeds from raw cotton, which was previously done by hand. **1794**

A cotton gin displayed at Eli Whitney Museum, Connecticut

Spark of genius
The principle of electromagnetic induction is discovered by Michael Faraday. His research demonstrates that electricity can become of practical technological use. **1831**



Michael Faraday

Man of steel
The first cost-efficient process for converting pig iron into steel is patented by inventor and engineer Henry Bessemer. **1854**

A shining light
Prolific inventor Thomas Edison refines the light bulb into a reliable, long-lasting light source. His entire electric utility system soon follows. **1879**

One of Edison's first demonstration light bulbs

The Wright stuff
Brothers Wilbur and Orville Wright build and fly the first controlled, powered aeroplane. Orville pilots their Flyer for 12 seconds. **1903**

1790 1800 1820 1840 1860 1880 1900 1908

A replica of Trevithick's locomotive at the National Waterfront Museum, Swansea

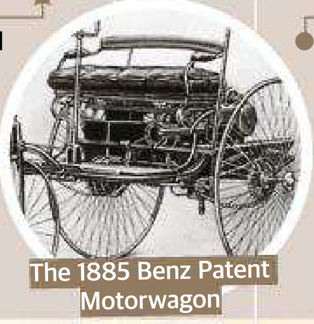
The locomotion
Three years after demonstrating his Puffing Devil steam carriage, Richard Trevithick runs a steam locomotive on rails at a Wales ironworks. **1804**

Need for speed
Robert Stephenson, son of George Stephenson, wins a speed trail contest with his 'Rocket' steam engine. **1829**

A stitch in time
Improving on Elias Howe's lockstitch sewing device, Isaac Singer develops the first truly practical successful sewing machine. **1851**

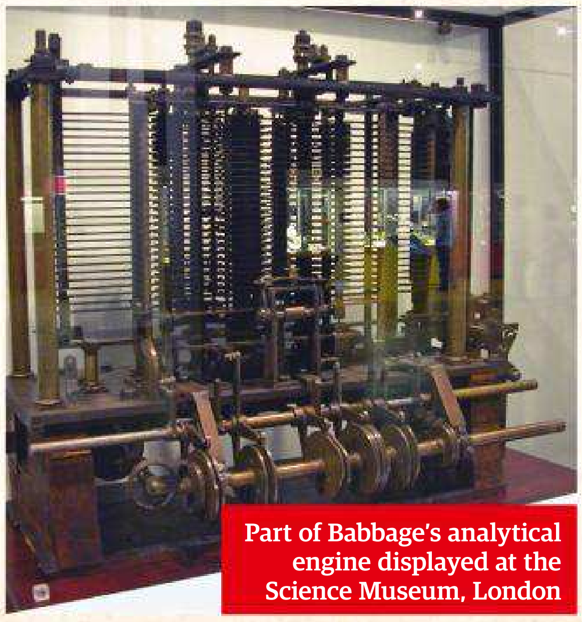
Let's talk
Despite claims from Elisha Gray, Scottish-born scientist Alexander Graham Bell is credited with inventing the telephone. **1876**

Driven to succeed
German mechanical engineer Karl Benz, spurred on by wife Bertha, develops the first practical car powered by an internal combustion engine. **1885**



The 1885 Benz Patent Motorwagon

Mass production, mass consumption
The Model T car is manufactured by Henry Ford. It is affordable for many due to assembly-line mass-production methods. **1908**

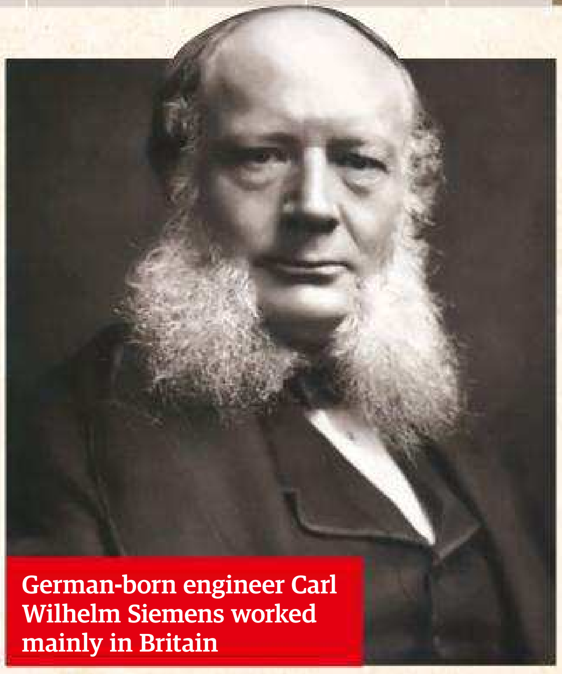


Part of Babbage's analytical engine displayed at the Science Museum, London

The first computer

1837

Many engine designs from the Industrial Revolution were never built. Perhaps the most astonishing device not constructed at the time was the analytical engine of Charles Babbage. His vision was for a huge brass, steam-powered, mechanical digital computer. Only much later, when modern-day computer designers began development, did it become clear that Babbage had anticipated almost every aspect of their work.

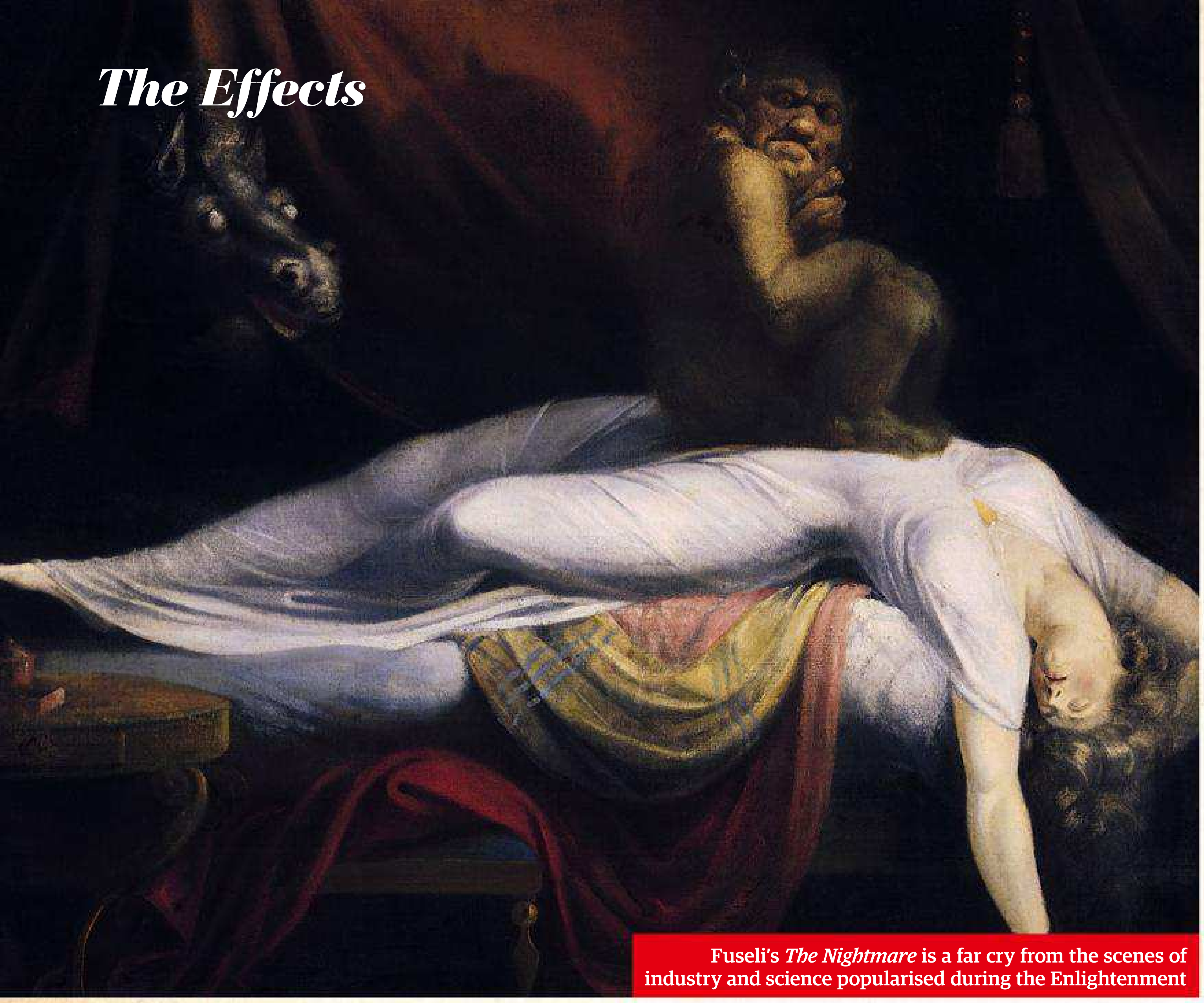


German-born engineer Carl Wilhelm Siemens worked mainly in Britain

Bulk steel production

1865

Steel output increased greatly when Bessemer's converter method was improved by the open-hearth process. Devised by Carl Wilhelm Siemens and developed by Pierre-Emile Martin, it was easier to control and allowed for large amounts of scrap iron and steel to be melted and refined. Bulk steel production from the Siemens-Martin process meant a greater use of steel in construction.



Fuseli's *The Nightmare* is a far cry from the scenes of industry and science popularised during the Enlightenment

Romantic art eschewed the scientific wonder and naturalistic landscapes that the Enlightenment painters had favoured. Instead, they produced stylised depictions of the world and dramatic scenes of ancient or biblical stories and classic mythology. John Martin's depictions of divine wrath made him one of the public's favourite artists, while iconic figures like William Blake produced mythical works depicting scenes of biblical drama. They employed the heroes of Greek and Rome not as inspirations for clean lines and mathematical proportion, but as allegorical figures whose stories were timeless.

As the Enlightenment movement attempted to understand, categorise and control nature, it was only natural that eventually it would bring that approach to industry. The Enlightenment lauded the purity of hard work and if that could be united that with the natural world, so much the better.

As empires expanded, however, this saw a vastly increased demand for material goods. People worked long hours to meet this need and soon new inventions and industrial developments began to emerge. What was once an agriculture-driven market in Britain became instead an industrial one and the rural economy began to shrink as people relocated to rapidly expanding towns and cities.

As industry grew, manufacturing became centred on large factories that replaced the smaller cottage industries that had once fuelled the British economy. Industrialists such as Richard Arkwright introduced machines that could replace the work done by many men and get it done in a fraction of the time. Eventually these became the glowering factories that are more traditionally associated with the Victorian era in which men, women and children toiled in sometimes back-breaking conditions for seemingly endless shifts.

With the growth of industry during the Industrial Revolution, there was a call for more efficient transport, too. Canals were channelled across the land, carving through the countryside. These waterways were soon the motorways of their day, carrying coal and products around the country, replacing the arduous land and sea journeys that had once been necessary. With its focus on urban growth, the Industrial Revolution eventually ushered in a whole new style of living in which cities became the hubs of society, and as they did, the poorest classes found their situation worsening.

The Industrial Revolution changed the status of women in Britain. Once traditionally engaged in mostly domestic roles, as the agricultural economy diminished, so too was the place of women in the home forced to change. It cost money to live in this newly industrialised urban world, so women began to seek employment. Often this would be as a domestic servant or in a factory - paid less than her male counterpart, of course. A woman's skills and industry, once a vital part of domestic living, now became a tool of the national economy. Though feminism as a concept didn't exist at the time, the fight for equality and recognition was about to become an issue of national importance.

As more women were compelled to work by economic need, they joined a workforce in which new battle lines were being drawn in the fight for workers' rights. For women, that battle went beyond better working conditions and to the very core of British democracy. Women were the heart of the home, responsible for keeping the domestic fires burning, and now they were playing their part in keeping the immensely wealthy British industries that fuelled the empire afloat too, yet they couldn't vote for the government that decided the very laws to which they were subjected. Soon the suffrage movement was gathering speed, and though the road would be long, the right to vote became one of the most important struggles that British women would ever know.

Though the Age of Enlightenment was brief, its impact lasts to this day not only in art, literature

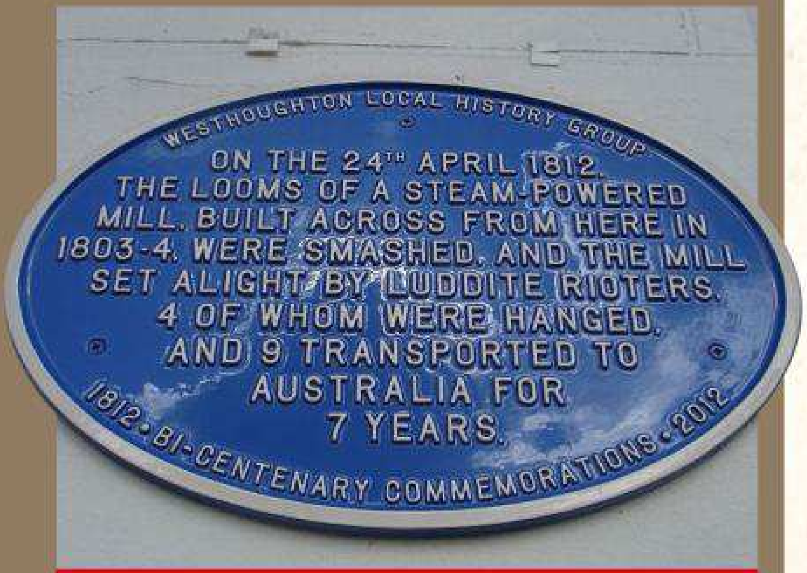
The Luddites

When machines came to take their jobs, the Luddites fought back

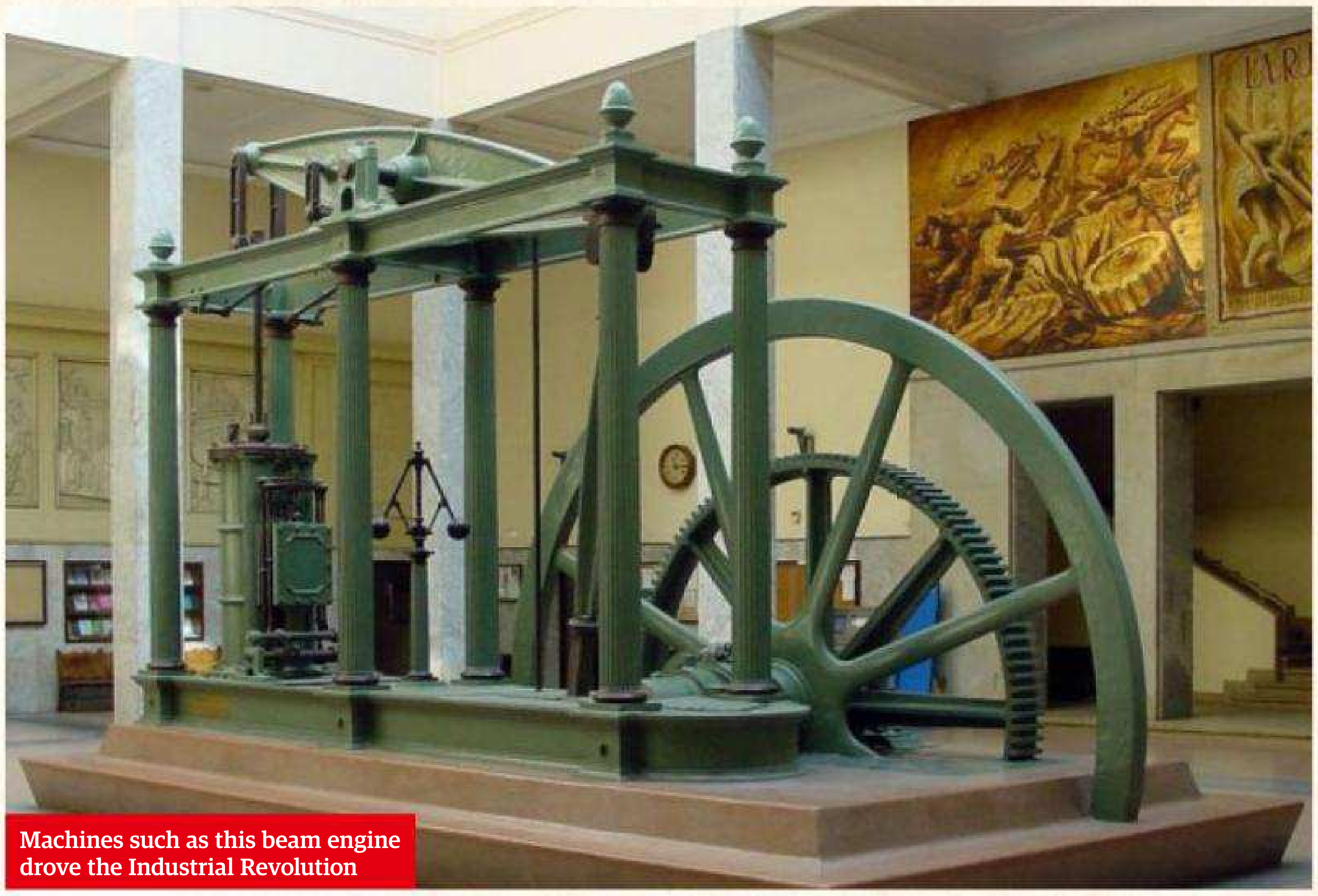
The Luddites were a group of disenfranchised 19th century weavers and textile workers who believed in radical direct action. As machines became prevalent in industry, these workers began to fear for their jobs, and were determined to make their protests felt.

The Luddite movement began in Nottingham and spread to Yorkshire and Lancashire. The Luddites were highly disciplined, and made their protests by smashing industrial equipment and burning the mills in which these machines were used. In reply, the government sent in troops to quell their demonstrations, but the Luddites responded with their most shocking protest to date.

A group of Luddites held up and assassinated William Horsfall, a Yorkshire mill owner who had spoken out against them. This time, however, it seemed that they had gone too far. 60 men were rounded up and subjected to a show trial that was intended to send a clear warning to Luddites that their activities wouldn't be tolerated. Though some of those on trial were cleared, for those who were convicted, the punishments were harsh, and included not only transportation, but execution. Fearing similar reprisals, the Luddites began to scale down their activities, and before long they ended them altogether.

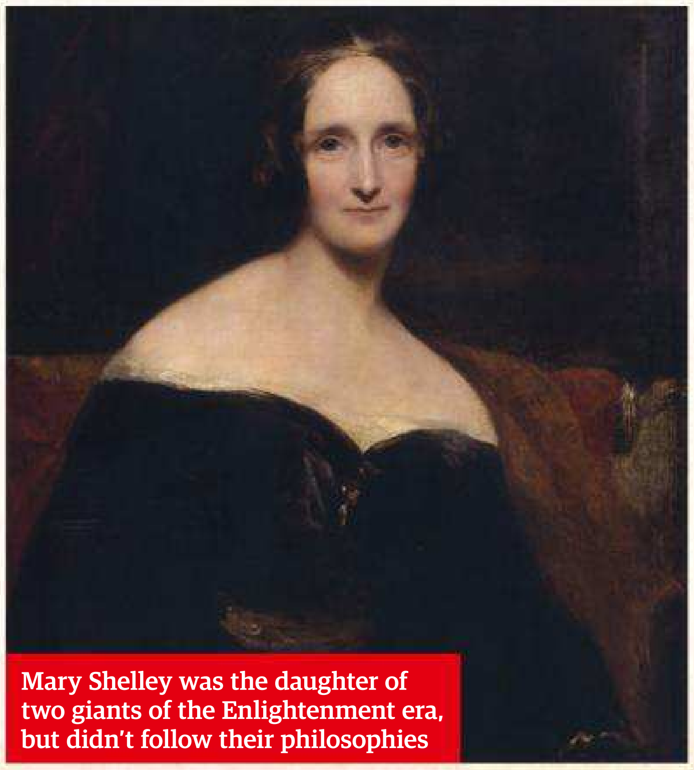

WESTHOUGHTON LOCAL HISTORY GROUP
ON THE 24TH APRIL 1812,
THE LOOMS OF A STEAM-POWERED
MILL, BUILT ACROSS FROM HERE IN
1803-4, WERE SMASHED, AND THE MILL
SET ALIGHT BY LUDDITE RIOTERS,
4 OF WHOM WERE HANGED,
AND 9 TRANSPORTED TO
AUSTRALIA FOR
7 YEARS.
1812 · BI-CENTENARY COMMEMORATIONS · 2012

Memorialised with a blue plaque, the Luddites faced stiff punishment for their protests



Machines such as this beam engine drove the Industrial Revolution

and scientific discovery, but in the much-debated legacy of the British Empire and the Industrial Revolution, which changed both the face of the British landscape and society itself. The post-Enlightenment period was one in which science and industry flourished just as Enlightenment philosophers had hoped they would, but in other aspects, Enlightenment beliefs faltered in the newly industrialised world. The French Revolution might have chased away some of the upper-class decadence the Enlightenment had frowned upon, but the rigid class structure and established order had barely changed at all. The search for knowledge and scientific innovation had ended not in the self-improvement of every man, but in a new industrial age where the middle and upper classes thrived as those at the bottom of the pile worked as hard as they ever had to serve the needs of a burgeoning empire and its upwardly mobile citizens.



Mary Shelley was the daughter of two giants of the Enlightenment era, but didn't follow their philosophies

Though the Age of Enlightenment had championed the collation and dissemination of knowledge, it was something that had little benefit for the working classes. Yet as the post-Enlightenment world saw industry and empire boom, so too did literacy and education rates begin to flourish at an astonishing rate. As they did, those outside of the ruling classes began to organise in their battle for recognition and basic rights. Once a place of cottage industries and a blossoming rural economies, mass industry was changing the face of Europe beyond recognition.

In the post-Enlightenment world, the once important rural economies were diminishing even as the cities of Europe and the age of empire were flourishing. New towns and expanding cities were filling up with new residents who had arrived from the countryside seeking reliable employment, as they could no longer secure it in more rural areas. Among those who came looking for work and their own slice of the brave new industrial future were women who had never worked outside of the home. Now, they took on jobs that they could never have even dreamed of in centuries past, and as they did, they sought equality and the most basic rights that were afforded to men who grafted alongside them.

This was the dawn of the modern world that has come to be today. In it we are able to spot the early stirrings of suffrage and what we now recognise as feminism. Just as the Enlightenment philosophers had eventually been pushed aside by the Romantics, so too were the idealistic Romantic philosophers sidelined by industrial might and eventually the dark, Satanic mills and dire rookeries that are now synonymous with the Victorian age of industry. In the post-Enlightenment world, reason, was no longer sleeping – it was working its fingers to the bone.

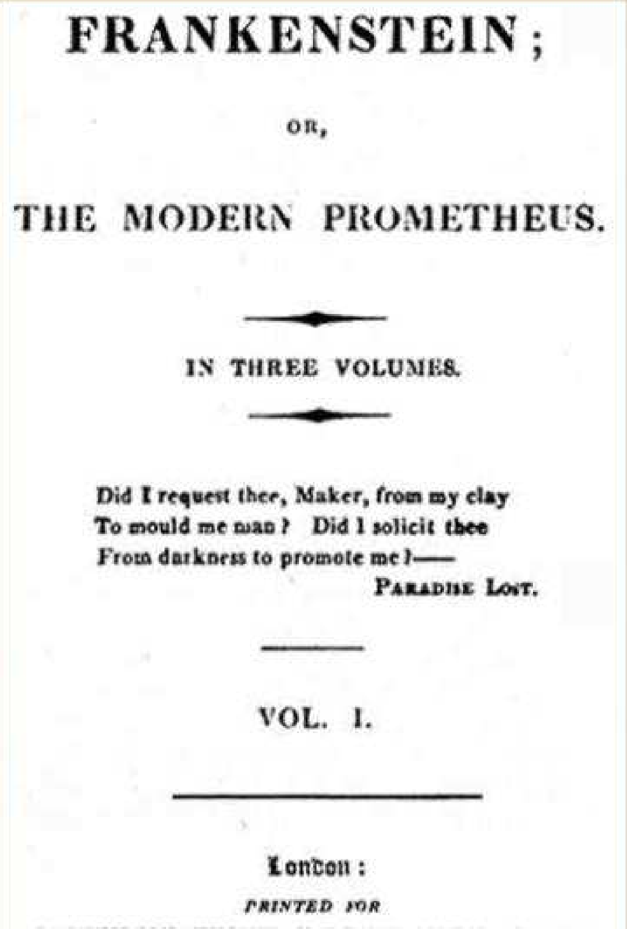
The Romantics

The Romantic movement followed the Age of Enlightenment and introduced some legendary names

Unlike their Enlightenment predecessors, the Romantics longed for a world of Medieval chivalry and classical myth in which emotions weren't suppressed by reason. They rejected the Enlightenment emphasis on empiricism, which argued that knowledge was derived from the senses, not the emotions.

The Romantic era peaked between 1800 and 1850, and gave birth to some of the most respected European talents not only of its age, but of all time. Such famed artists as William Blake imagined scenes of divine wrath and mythological worlds, while JMW Turner painted bucolic English landscapes that captured a countryside untouched by industrial developments. In the world of literature, meanwhile, themes of isolation and the supernatural edged out the Enlightenment emphasis on a clear-thinking drive to categorise and acquire knowledge for the benefit of humankind.

In *Frankenstein*, Mary Shelley created the quintessential Romantic experience. The creature is an isolated outcast, subject to man's derision because of his appearance and despite his intelligence. In attempting to use science to shape the world, Victor Frankenstein creates a being that has its own soul and finds himself ill-equipped to deal with such responsibility. Rich with questions of individualism and self, it is arguably the ultimate Romantic novel.



FRANKENSTEIN;

OR,

THE MODERN PROMETHEUS.

IN THREE VOLUMES.

Did I request thee, Maker, from my clay
To mould me man? Did I solicit thee
From darkness to promote me?——
PARADISE LOST.

VOL. I.

London:
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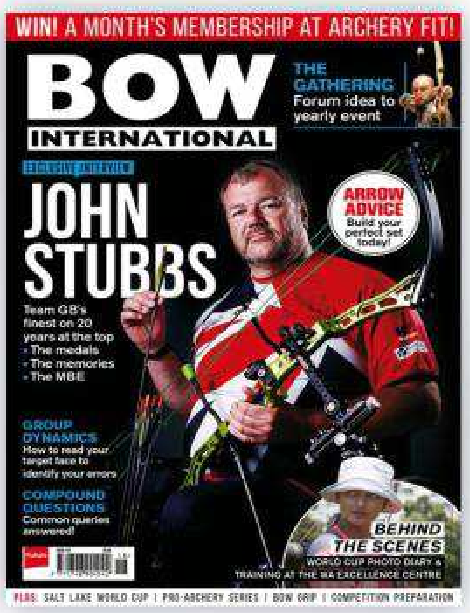
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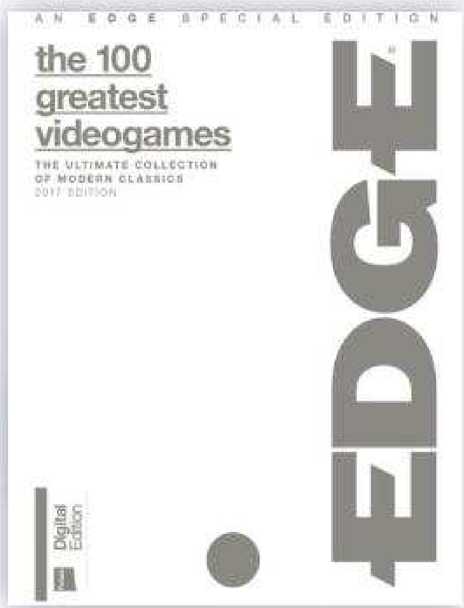
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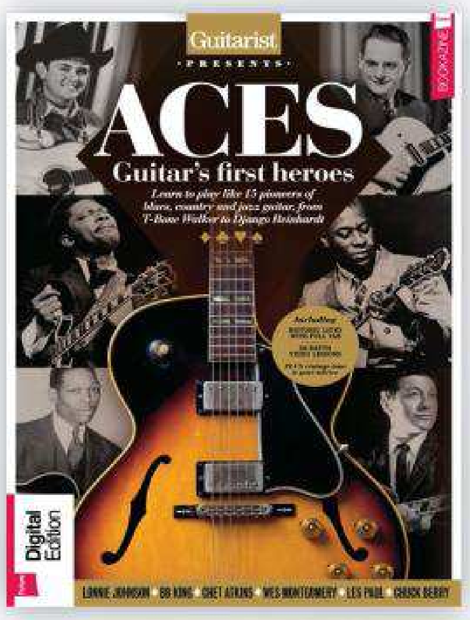
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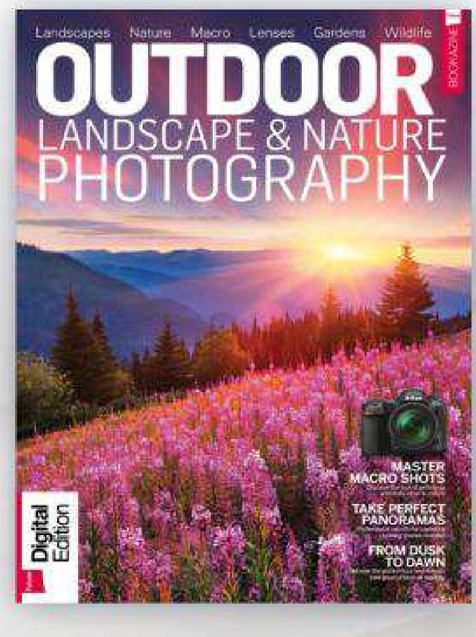
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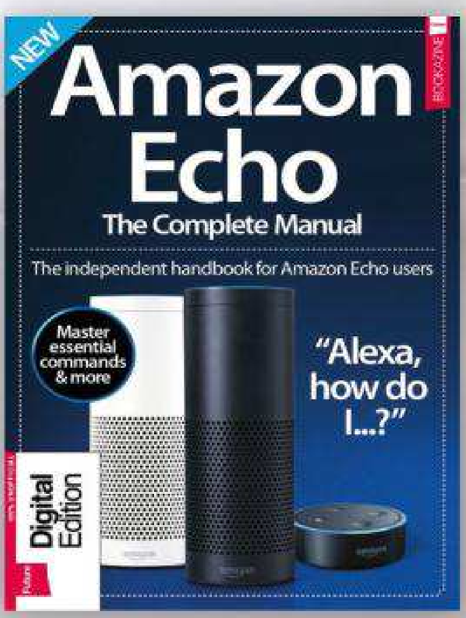
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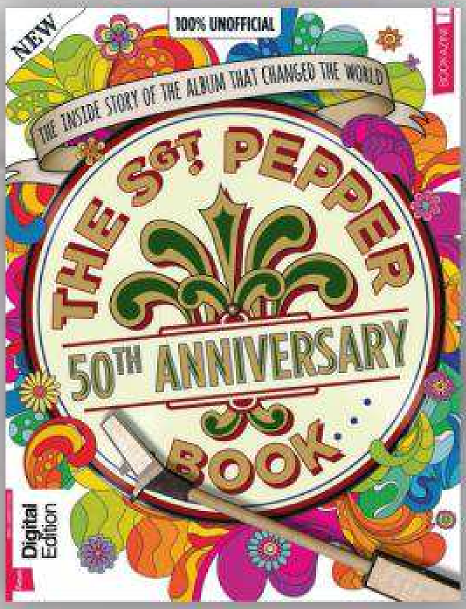
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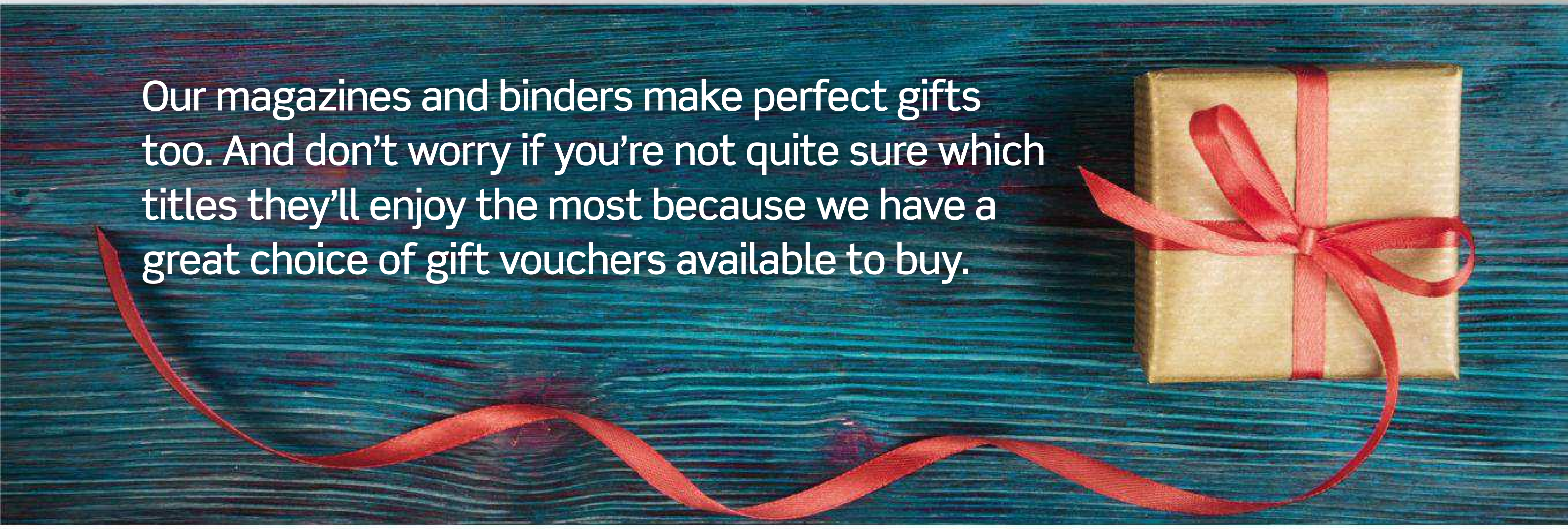

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